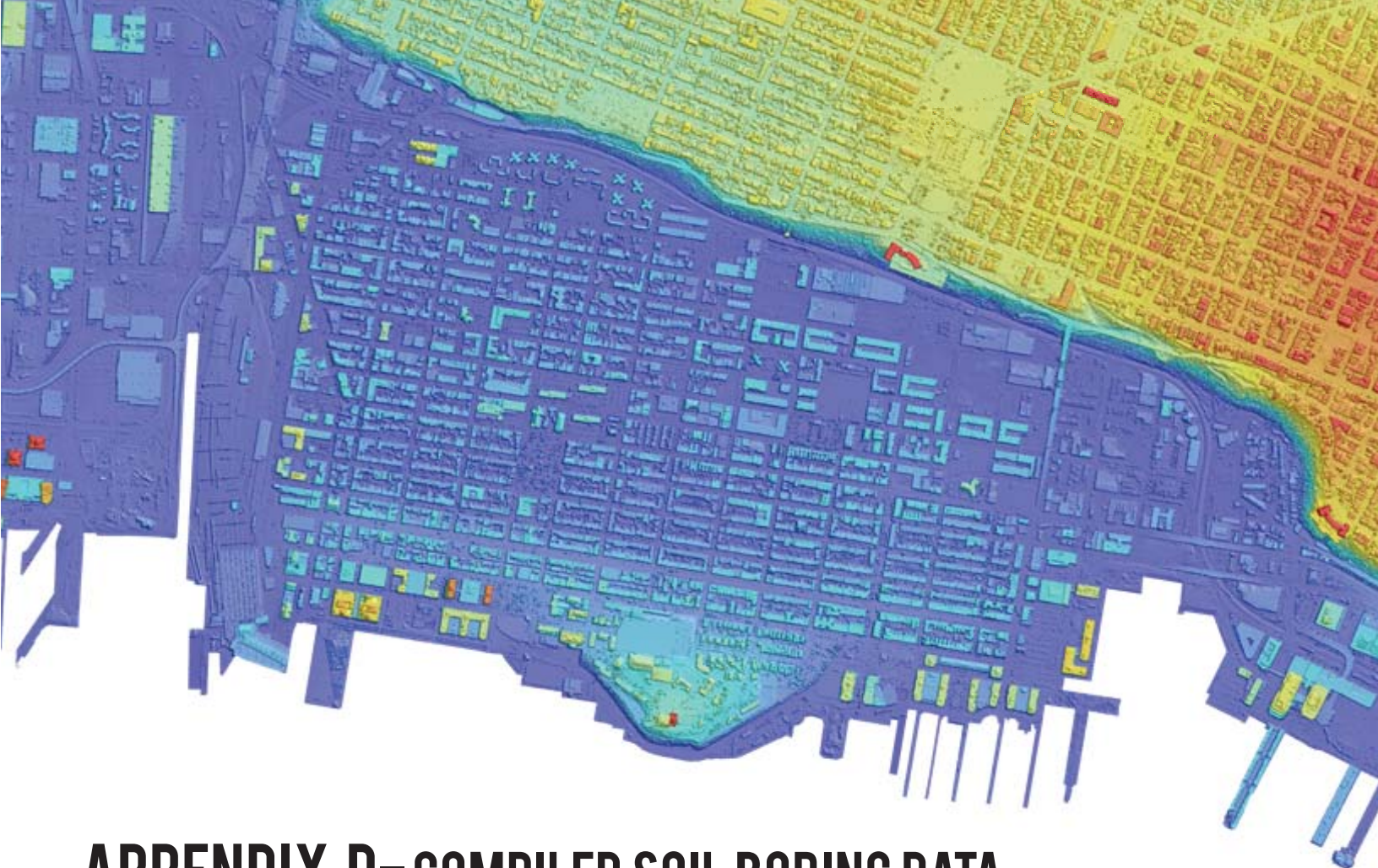
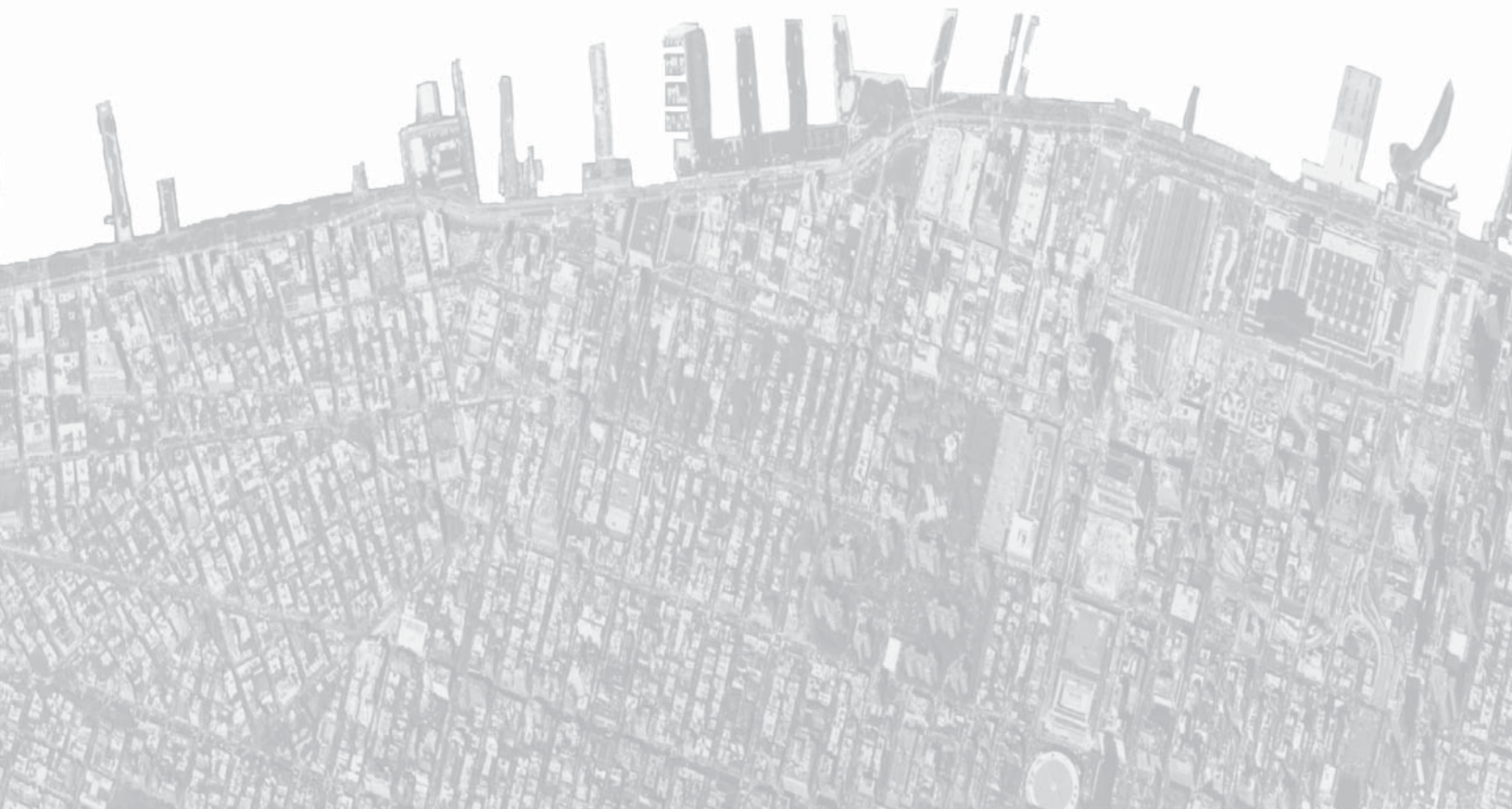
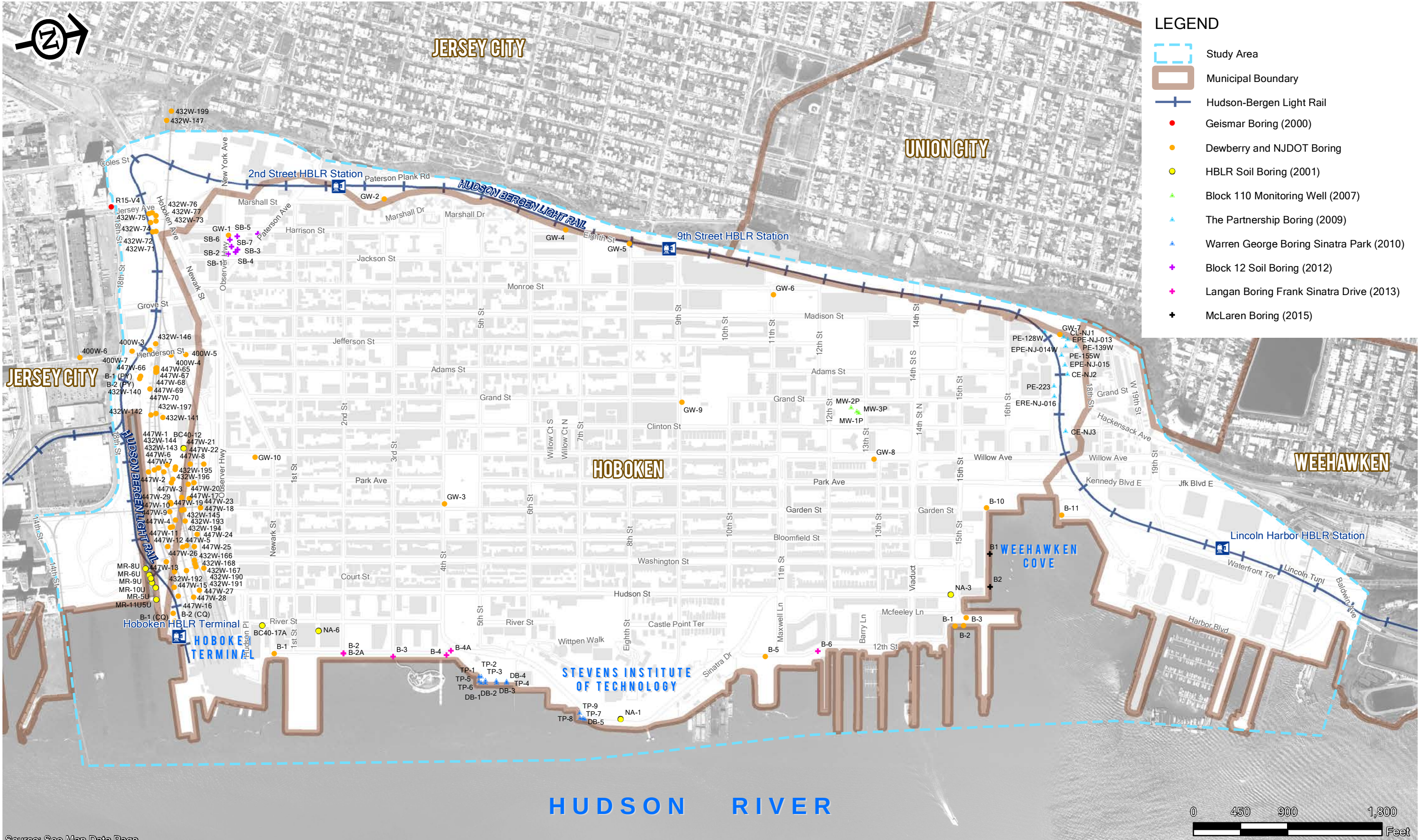




## APPENDIX D-COMPILED SOIL BORING DATA





Source: See Map Data Page

# HISTORIC SOIL BORING LOCATIONS

# **GEISMAR BORING 2000**

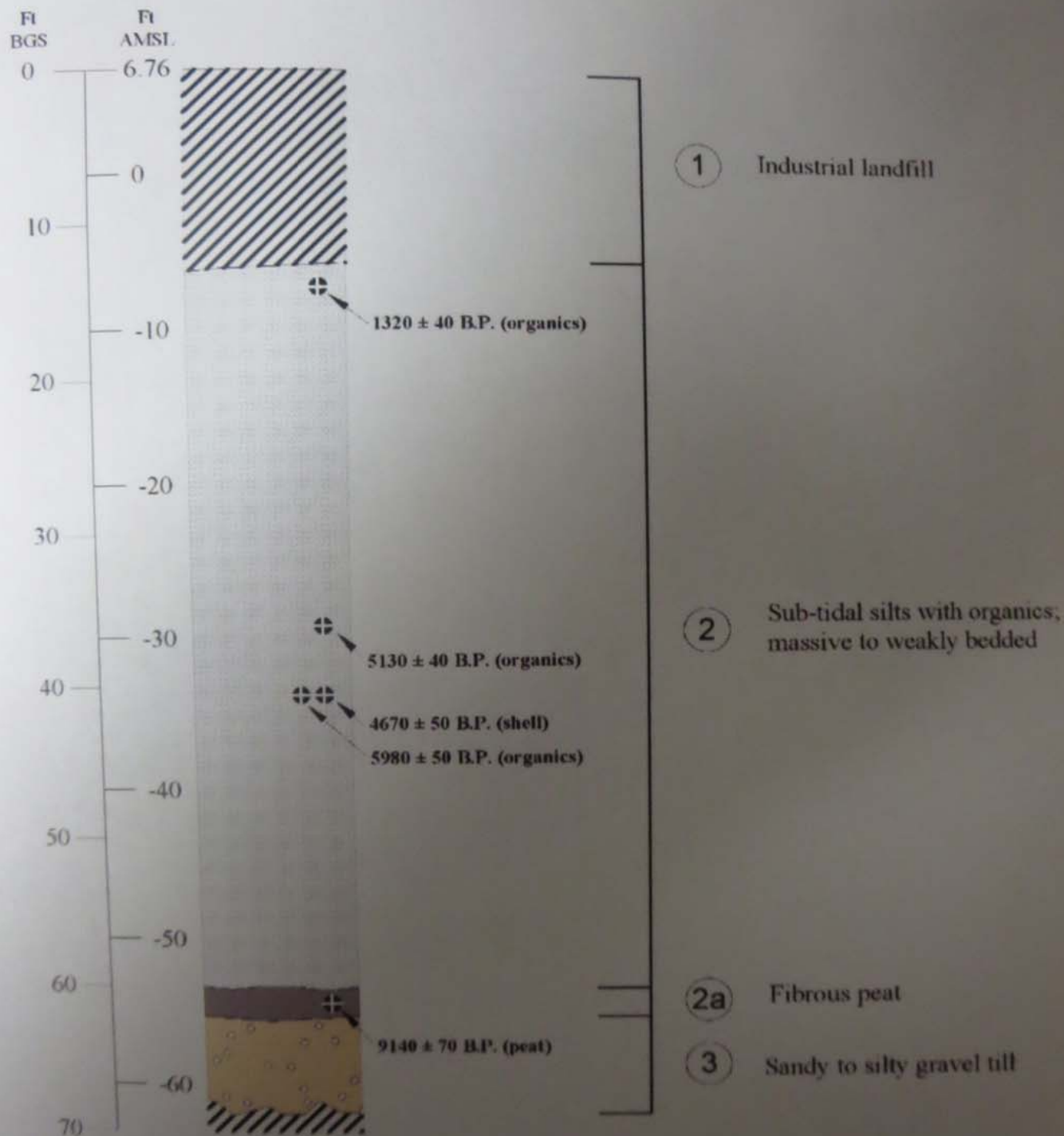


Figure 2. Stratigraphy of Jersey City Boring R15-V4. Geo-stratigraphic units and radiocarbon dates indicated.

# **DEWBERRY AND NJDOT BORINGS**

**Inferred Change in Strata**

**Inferred Change in Strata** 

**Inferred Change in Strata**



**Inferred Change in Strata**

ROUTE: LOCAL NAME: Steam Plant Boring

TEST HOLE NO. 447W - 65

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: Augustine DATE STARTED: 7/30/79

INSPECTOR: Henry DATE COMPLETED: 8/1/79

Elevation G.W.T.  
 0 Hr. Caved in Dry 1' Down Date: 8/1/79  
 24 Hr. Filled in Dry at Surface Date: 8/2/79  
 \_\_\_\_\_ ft. P.P. Installed Date:

| CASING BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |      |       |       | REC. | Sample ID and Profile Change                                           |       |
|--------------|------------|-------|----------------|------|-------|-------|------|------------------------------------------------------------------------|-------|
|              |            |       | 0-6            | 6-12 | 12-18 | 18-24 |      |                                                                        |       |
| 10           | S-1        | 0.0'  | 1.5'           | 6    | 9     | 7     | 12"  | Dark Brown & Black CF SAND, some (+) Silt, little MF Gravel (Cinders). |       |
| 97           |            |       |                |      |       |       |      |                                                                        |       |
| 42           |            |       |                |      |       |       |      |                                                                        |       |
| 19           |            |       |                |      |       |       |      |                                                                        |       |
| 5            | 13         |       |                |      |       |       |      |                                                                        |       |
| 5            | S-2        | 5.0'  | 6.5'           | 3    | 2     | 3     | 2"   | Black CF GRAVEL trace, Silt (Cinders).                                 |       |
| 4            |            |       |                |      |       |       |      |                                                                        |       |
| 5            |            |       |                |      |       |       |      |                                                                        | 8.0'  |
| 4            |            |       |                |      |       |       |      |                                                                        |       |
| 10           | 4          |       |                |      |       |       |      |                                                                        |       |
| 3            | S-3        | 10.0' | 11.5'          | 1    | 1     | 1     | 4"   | Black ORGANIC SILT and VEGATATIONS.                                    |       |
| 3            |            |       |                |      |       |       |      |                                                                        |       |
| 3            |            |       |                |      |       |       |      |                                                                        |       |
| 5            |            |       |                |      |       |       |      |                                                                        |       |
| 15           | 3          |       |                |      |       |       |      |                                                                        |       |
| 5            | S-4        | 15.0' | 16.5'          | 1    | 2     | 2     | 16"  | SAME                                                                   |       |
| 7            |            |       |                |      |       |       |      |                                                                        |       |
| 9            |            |       |                |      |       |       |      |                                                                        |       |
| 12           |            |       |                |      |       |       |      |                                                                        |       |
| 20           | 10         |       |                |      |       |       |      |                                                                        |       |
| 12           | S-5        | 20.0' | 21.5'          | 2    | 2     | 2     | 18"  | Brown PEAT and ORGANIC SILT.                                           |       |
| 10           |            |       |                |      |       |       |      |                                                                        |       |
| 12           |            |       |                |      |       |       |      |                                                                        |       |
| 12           |            |       |                |      |       |       |      |                                                                        |       |
| 25           | 18         |       |                |      |       |       |      |                                                                        |       |
| 16           | S-6        | 25.0' | 26.5'          | 10   | 10    | 14    | 18"  | SAME                                                                   | 25.5' |
| 18           |            |       |                |      |       |       |      | Grey MF SAND, little (+) Silt.                                         |       |
| 16           |            |       |                |      |       |       |      |                                                                        |       |
| 16           |            |       |                |      |       |       |      |                                                                        |       |
| 30           | 13         |       |                |      |       |       |      |                                                                        |       |
| 12           | S-7        | 30.0' | 31.5'          | 5    | 5     | 9     | 0"   | WASH SAMPLE - Grey MF SAND, trace Silt (SAME).                         |       |
| 20           |            |       |                |      |       |       |      |                                                                        |       |
| 17           |            |       |                |      |       |       |      |                                                                        |       |
| 22           |            |       |                |      |       |       |      |                                                                        |       |
| 35           | 21         |       |                |      |       |       |      |                                                                        |       |
| 27           | S-8        | 35.0' | 36.5'          | 6    | 15    | 22    | 18"  | SAME                                                                   | 35.5' |
| 39           |            |       |                |      |       |       |      | Grey & Brown Varved SILT, trace Grey CLAY Varves.                      |       |
| 47           |            |       |                |      |       |       |      |                                                                        |       |
| 59           |            |       |                |      |       |       |      |                                                                        | 39.0' |
| 40           | 102        |       |                |      |       |       |      |                                                                        |       |

|                                          |          |     |
|------------------------------------------|----------|-----|
| Nominal I.D. of Drive Pipe               | 2½"      | XXX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |     |
| Weight of hammer on Drive Pipe           | 300 lbs. |     |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |     |
| Drop of hammer on Drive Pipe             | 24"      |     |
| Drop of hammer on Split Barrel Sampler   | 30"      |     |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification  
after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Steam Plant Boring

TEST HOLE NO. 447W - 65

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: Augustine DATE STARTED: 7/30/79

INSPECTOR: Henry DATE COMPLETED: 8/1/79

Elevation G.W.T.

0 Hr. Caved in Dry 1' Down Date: 8/1/79

24 Hr. Filled in Dry at Surface Date: 8/2/79

ft. P.P. Installed

Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |     |     |    | REC. | Sample ID<br>and<br>Profile Change                                       |
|-----------------|------------|-------|----------------|-----|-----|----|------|--------------------------------------------------------------------------|
|                 |            |       | 0              | 6   | 12  | 18 |      |                                                                          |
| 187             | S-9        | 40.0' | 40.5'          | 165 | --  | -- | 4"   | Brown-Grey CF Sand, some Silt, some CF Gravel.                           |
| 255             |            |       |                |     |     |    |      |                                                                          |
| 153             |            |       |                |     |     |    |      |                                                                          |
| 83              |            |       |                |     |     |    |      |                                                                          |
| 45              | 91         |       |                |     |     |    |      |                                                                          |
| 65              | S-10       | 45.0' | 46.5'          | 68  | 143 | 51 | 2"   | Brown CF Sand, and C Gravel (Wash Residue).                              |
| 126             |            |       |                |     |     |    |      |                                                                          |
| 93              |            |       |                |     |     |    |      |                                                                          |
| 50              | 132        |       |                |     |     |    |      |                                                                          |
| XXX             | 90         |       |                |     |     |    |      |                                                                          |
|                 | S-11       | 50.0' | 51.5'          | 47  | 43  | 32 | 1"   | CM GRAVEL (Wash Residue)<br>(Grey CF SAND, little (-) Silt, Wash Sample) |
|                 |            |       |                |     |     |    |      | 51.5'                                                                    |
| 55              |            |       |                |     |     |    |      |                                                                          |
| XXX             |            |       |                |     |     |    |      |                                                                          |
|                 |            |       |                |     |     |    |      |                                                                          |
| 60              |            |       |                |     |     |    |      |                                                                          |
| XXX             |            |       |                |     |     |    |      |                                                                          |
|                 |            |       |                |     |     |    |      |                                                                          |
| 65              |            |       |                |     |     |    |      |                                                                          |
| XXX             |            |       |                |     |     |    |      |                                                                          |
|                 |            |       |                |     |     |    |      |                                                                          |
| 70              |            |       |                |     |     |    |      |                                                                          |
| XXX             |            |       |                |     |     |    |      |                                                                          |
|                 |            |       |                |     |     |    |      |                                                                          |
| 75              |            |       |                |     |     |    |      |                                                                          |
| XXX             |            |       |                |     |     |    |      |                                                                          |
|                 |            |       |                |     |     |    |      |                                                                          |
| 80              |            |       |                |     |     |    |      |                                                                          |
| XXX             |            |       |                |     |     |    |      |                                                                          |

BOTTOM OF HOLE

Nominal I.D. of Drive Pipe 2½" XXX

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification  
after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Steam Plant Boring TEST HOLE NO. 447W - 66

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: Augustine DATE STARTED: 8/1/79

Elevation G.W.T.  
0 Hr. 7.6' Down from existing Date: 8/3/79  
24 Hr. surface Date:

INSPECTOR: Henry DATE COMPLETED: 8/3/79

ft. P.P. Installed Date:

| CASING<br>BLOWS | SAMPLE NO. DEPTH |       |       | Blows on Spoon |    |    |    | REC. | Sample ID<br>and<br>Profile Change                             |       |
|-----------------|------------------|-------|-------|----------------|----|----|----|------|----------------------------------------------------------------|-------|
|                 |                  |       |       | 0              | 6  | 12 | 18 |      |                                                                |       |
| 12              | S-1              | 0.0'  | 1.5'  | 5              | 6  | 8  |    | 4"   | Grey CF Sand, and Silt, trace MF Gravel - Wood.                |       |
| 13              |                  |       |       |                |    |    |    |      |                                                                |       |
| 16              |                  |       |       |                |    |    |    |      |                                                                |       |
| 52              |                  |       |       |                |    |    |    |      |                                                                |       |
| 5               | 21               |       |       |                |    |    |    |      |                                                                |       |
| 11              | S-2              | 5.0'  | 6.5'  | 11             | 11 | 9  |    | 5"   | Black CF Sand, some Silt, some CF Gravel<br>(Cinders - Brick). | 7.0'  |
| 11              |                  |       |       |                |    |    |    |      |                                                                |       |
| 2               |                  |       |       |                |    |    |    |      |                                                                |       |
| 2               |                  |       |       |                |    |    |    |      |                                                                |       |
| 10              | 4                |       |       |                |    |    |    |      |                                                                |       |
| 1               | S-3              | 10.0' | 11.5' | 1              | 1  | 1  |    | 5"   | Grey Organic SILT trace, Shells.                               |       |
| 3               |                  |       |       |                |    |    |    |      |                                                                |       |
| 2               |                  |       |       |                |    |    |    |      |                                                                |       |
| 2               |                  |       |       |                |    |    |    |      |                                                                |       |
| 15              | 4                |       |       |                |    |    |    |      |                                                                |       |
| 3               | S-4              | 15.0' | 16.5' | 1              | 1  | 1  |    | 6"   | SAME                                                           |       |
| 5               |                  |       |       |                |    |    |    |      |                                                                |       |
| 3               |                  |       |       |                |    |    |    |      |                                                                |       |
| 5               |                  |       |       |                |    |    |    |      |                                                                |       |
| 20              | 4                |       |       |                |    |    |    |      |                                                                |       |
| 8               | S-5              | 20.0' | 21.5' | 1              | 1  | 1  |    | 2"   | Grey Organic SILT little, VEGATATION.                          |       |
| 6               |                  |       |       |                |    |    |    |      |                                                                |       |
| 6               |                  |       |       |                |    |    |    |      |                                                                |       |
| 5               |                  |       |       |                |    |    |    |      |                                                                |       |
| 25              | 9                |       |       |                |    |    |    |      |                                                                |       |
| 20              | S-6              | 25.0' | 26.5' | 2              | 9  | 7  |    | 1"   | Grey F SAND, some Silt.                                        | 25.0' |
| 37              |                  |       |       |                |    |    |    |      |                                                                |       |
| 42              |                  |       |       |                |    |    |    |      |                                                                |       |
| 32              |                  |       |       |                |    |    |    |      |                                                                |       |
| 30              | 26               |       |       |                |    |    |    |      |                                                                |       |
| 18              | S-7              | 30.0' | 31.5' | 3              | 7  | 11 |    | 2"   | Grey MF SAND, little Silt, trace (+) C Gravel.                 |       |
| 17              |                  |       |       |                |    |    |    |      |                                                                |       |
| 18              |                  |       |       |                |    |    |    |      |                                                                |       |
| 27              |                  |       |       |                |    |    |    |      |                                                                |       |
| 35              | 27               |       |       |                |    |    |    |      |                                                                |       |
| 29              | S-8              | 35.0' | 36.5' | 5              | 8  | 10 |    | 9"   | SAME                                                           | 36.0' |
| 32              |                  |       |       |                |    |    |    |      | Brown Grey SILT, some Brown Silt, little F<br>Sand Layers.     |       |
| 35              |                  |       |       |                |    |    |    |      |                                                                |       |
| 41              |                  |       |       |                |    |    |    |      |                                                                |       |
| 40              | 47               |       |       |                |    |    |    |      |                                                                |       |

|                                          |          |      |
|------------------------------------------|----------|------|
| Nominal I.D. of Drive Pipe               | 2½"      | XXXX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |      |
| Weight of hammer on Drive Pipe           | 300 lbs. |      |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |      |
| Drop of hammer on Drive Pipe             | 24"      |      |
| Drop of hammer on Split Barrel Sampler   | 30"      |      |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification  
after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Steam Plant Boring

TEST HOLE NO. 447W - 66

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: Augustine DATE STARTED: 8/1/79

Elevation G.W.T.  
0 Hr. 7.6' Down from existing Date: 8/3/79  
24 Hr. surface Date:

INSPECTOR: Henry DATE COMPLETED: 8/3/79

ft. P.P. Installed Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |       |      |        | REC. | Sample ID<br>and<br>Profile Change                       |                                                     |
|-----------------|------------|-------|----------------|-------|------|--------|------|----------------------------------------------------------|-----------------------------------------------------|
|                 |            |       | 0              | 6     | 12   | 18     |      |                                                          |                                                     |
| 38              | S-9        | 40.0' | 41.5'          | 11    | 15   | 16     | 14"  | Red Brown & Grey CLAY varved Brown Silt.                 |                                                     |
| 50              |            |       |                |       |      |        |      |                                                          |                                                     |
| 46              |            |       |                |       |      |        |      |                                                          |                                                     |
| 59              |            |       |                |       |      |        |      |                                                          |                                                     |
| 45              | 118        |       |                |       |      |        |      |                                                          | 44.0'                                               |
|                 | 98         | S-10  | 45.0'          | 46.0' | 61   | 157    | --   | 12"                                                      | Brown CF SAND, little (+) Silt, some (-) MF Gravel. |
|                 | 116        |       |                |       |      |        |      |                                                          |                                                     |
| 50              | 124        |       |                |       |      |        |      |                                                          |                                                     |
| XXX             | 105        |       |                |       |      |        |      |                                                          |                                                     |
|                 | 119        |       |                |       |      |        |      |                                                          |                                                     |
|                 | 72         | S-11  | 50.0'          | 51.5' | 200  | 78     | 59   | 2"                                                       | Black CF GRAVEL.                                    |
|                 | 96         |       |                |       |      |        |      |                                                          |                                                     |
|                 | 142        |       |                |       |      |        |      |                                                          |                                                     |
| 55              | 163        |       |                |       |      |        |      |                                                          |                                                     |
| XXX             | 110        |       |                |       |      |        |      |                                                          |                                                     |
|                 |            | S-12  | 55.0'          | 55.8' | 24   | 100/-- | 0"   | (Wash Sample)<br>CF SAND, little Silt, little MF Gravel. | 55.8'                                               |
|                 |            |       |                |       | .25' |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
| 60              |            |       |                |       |      |        |      |                                                          |                                                     |
| XXX             |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
| 25              |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
| 30              |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
| 35              |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |
| 40              |            |       |                |       |      |        |      |                                                          |                                                     |
|                 |            |       |                |       |      |        |      |                                                          |                                                     |

BOTTOM OF HOLE

Nominal I.D. of Drive Pipe 2½" XXX

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification  
after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Steam Plant Boring

TEST HOLE NO. 447W - 67

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: Augustine

DATE STARTED: 8/3/79

Elevation G.W.T.

0 Hr. 5.2' Down

Date: 8/6/79

INSPECTOR: Henry

DATE COMPLETED: 8/6/79

24 Hr. Filled in Dry at Surface

Date: 8/7/79

ft. P.P. Installed

Date:

| CASING<br>BLOWS | SAMPLE NO. DEPTH |       |       | Blows on Spoon |         |          | REC. | Sample ID<br>and<br>Profile Change                                       | ft. P.P. Installed | Date: |
|-----------------|------------------|-------|-------|----------------|---------|----------|------|--------------------------------------------------------------------------|--------------------|-------|
|                 |                  |       |       | 0<br>6         | 6<br>12 | 12<br>18 |      |                                                                          |                    |       |
| 7               | S-1              | 0.0'  | 1.5'  | 10             | 7       | 11       | 8"   | Black CF SAND, some Silt, little CF Gravel (Cinders).                    |                    |       |
| 10              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 17              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 10              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 5               | 10               |       |       |                |         |          |      |                                                                          |                    |       |
| 4               | S-2              | 5.0'  | 6.5'  | 2              | 4       | 2        | 5"   | Dark Grey CF Sand, and Silt, some (-)CF Gravel.                          |                    |       |
| 2               |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 3               |                  |       |       |                |         |          |      |                                                                          |                    | 8.0'  |
| 2               |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 10              | 3                |       |       |                |         |          |      |                                                                          |                    |       |
| 2               | S-3              | 10.0' | 11.5' | 2              | 1       | 1        | 7"   | Dark Grey Organic SILT little, CF SAND, trace F Gravel (Cinders & Coal). |                    |       |
| 3               |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 4               |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 2               |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 15              | 2                |       |       |                |         |          |      |                                                                          |                    |       |
| 3               | S-4              | 15.0' | 16.5' | 1              | 1       | 1        | 3"   | Dark Grey Organic SILT trace, CF Gravel (Cinders).                       |                    |       |
| 5               |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 5               |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 4               |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 20              | 3                |       |       |                |         |          |      |                                                                          |                    |       |
| 5               | S-5              | 20.0' | 21.5' | 2              | 2       | 5        | 18"  | Brown PEAT                                                               |                    | 21.0' |
| 9               |                  |       |       |                |         |          |      | Grey MF SAND, some (-) Silt.                                             |                    |       |
| 15              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 16              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 25              | 22               |       |       |                |         |          |      |                                                                          |                    |       |
| 23              | S-6              | 25.0' | 26.5' | 12             | 18      | 18       | 14"  | Grey MF SAND, little Silt.                                               |                    |       |
| 24              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 21              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 18              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 30              | 15               |       |       |                |         |          |      |                                                                          |                    |       |
| 28              | S-7              | 30.0' | 31.5' | 6              | 11      | 20       | 9"   | SAME                                                                     |                    |       |
| 29              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 32              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 21              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 35              | 27               |       |       |                |         |          |      |                                                                          |                    | 35.0' |
| 41              | S-8              | 35.0' | 36.5' | 16             | 19      | 18       | 2"   | Grey & Brown Clayey SILT little, MF Gravel.                              |                    |       |
| 52              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 54              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 39              |                  |       |       |                |         |          |      |                                                                          |                    |       |
| 40              | 36               |       |       |                |         |          |      |                                                                          |                    |       |

Nominal I.D. of Drive Pipe 2½" KMX

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification  
after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

### Inferred Change in Strata

ROUTE: LOCAL NAME: Steam Plant Boring

TEST HOLE NO. 447W - 68

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE:

GROUND LINE ELEVATION:

BORINGS MADE BY: Gervasio DATE STARTED: 7/31/79

Elevation G.W.T.

0 Hr.

Date:

24 Hr.

Date:

INSPECTOR: Henry DATE COMPLETED: 8/1/79

ft. P.P. Installed

Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |    |    | REC. | Sample ID<br>and<br>Profile Change                                      |
|-----------------|------------|-------|----------------|----|----|----|------|-------------------------------------------------------------------------|
|                 |            |       | 0              | 6  | 12 | 18 |      |                                                                         |
| 4               | S-1        | 0.0'  | 1.5'           | 3  | 5  | 6  | 13"  | Black CF SAND, some Silt, little (+) CF Gravel (All Cinders).           |
| 6               |            |       |                |    |    |    |      |                                                                         |
| 7               |            |       |                |    |    |    |      |                                                                         |
| 6               |            |       |                |    |    |    |      |                                                                         |
| 5               | 3          |       |                |    |    |    |      |                                                                         |
| 2               | S-2        | 5.0'  | 6.5'           | 1  | 1  | 1  | 5"   | Black-Dark Brown CF Sand, and (-) (ORGANIC?) Silt, trace MF Gravel.     |
| 2               |            |       |                |    |    |    |      |                                                                         |
| 3               |            |       |                |    |    |    |      |                                                                         |
| 3               |            |       |                |    |    |    |      |                                                                         |
| 10              | 2          |       |                |    |    |    |      |                                                                         |
| 5               | S-3        | 10.0' | 11.5'          | 4  | 1  | 1  | 9"   | Black CF Sand, some (+) ORGANIC? Silt, some CF Gravel (Cinders).        |
| 3               |            |       |                |    |    |    |      |                                                                         |
| 2               |            |       |                |    |    |    |      |                                                                         |
| 3               |            |       |                |    |    |    |      |                                                                         |
| 15              | 2          |       |                |    |    |    |      |                                                                         |
| 3               | S-4        | 15.0' | 16.5'          | 1  | 1  | 1  | 16"  | Black ORGANIC SILT and VEGATATION.                                      |
| 3               |            |       |                |    |    |    |      |                                                                         |
| 4               |            |       |                |    |    |    |      |                                                                         |
| 3               |            |       |                |    |    |    |      |                                                                         |
| 20              | 3          |       |                |    |    |    |      |                                                                         |
| 7               | S-5        | 20.0' | 21.5'          | 3  | 2  | 2  | 17"  | SAME                                                                    |
| 7               |            |       |                |    |    |    |      |                                                                         |
| 9               |            |       |                |    |    |    |      |                                                                         |
| 13              |            |       |                |    |    |    |      |                                                                         |
| 25              | 18         |       |                |    |    |    |      |                                                                         |
| 27              | S-6        | 25.0' | 26.5'          | 16 | 15 | 12 | 17"  | Brown PEAT                                                              |
| 23              |            |       |                |    |    |    |      | Grey MF SAND, little Silt.                                              |
| 17              |            |       |                |    |    |    |      |                                                                         |
| 15              |            |       |                |    |    |    |      |                                                                         |
| 30              | 25         |       |                |    |    |    |      |                                                                         |
| 21              | S-7        | 30.0' | 31.5'          | 8  | 12 | 17 | 16"  | SAME                                                                    |
| 33              |            |       |                |    |    |    |      |                                                                         |
| 27              |            |       |                |    |    |    |      |                                                                         |
| 31              |            |       |                |    |    |    |      |                                                                         |
| 35              | 30         |       |                |    |    |    |      |                                                                         |
| 39              | S-8        | 35.0' | 36.5'          | 6  | 11 | 13 | 18"  | Red Brown & Grey F Sand, and (+) Silt, Varved with trace (+) Grey Clay. |
| 47              |            |       |                |    |    |    |      |                                                                         |
| 43              |            |       |                |    |    |    |      |                                                                         |
| 44              |            |       |                |    |    |    |      |                                                                         |
| 40              | 46         |       |                |    |    |    |      |                                                                         |

Nominal I.D. of Drive Pipe 2½" XXX

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Steam Plant Boring

TEST HOLE NO. 447W - 68

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE:

GROUND LINE ELEVATION:

BORINGS MADE BY: Gervasio DATE STARTED: 7/31/79

Elevation G.W.T.

0 Hr.

Date:

24 Hr.

Date:

INSPECTOR: Henry DATE COMPLETED: 8/1/79

ft. P.P. Installed

Date:

|     | CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |     |     |     | REC. | Sample ID<br>and<br>Profile Change           |       |
|-----|-----------------|------------|-------|----------------|-----|-----|-----|------|----------------------------------------------|-------|
|     |                 |            |       | 0              | 6   | 12  | 18  |      |                                              |       |
|     | 43              | S-9        | 40.0' | 41.5'          | 7   | 10  | 11  | 18"  | SAME                                         |       |
|     | 54              |            |       |                |     |     |     |      |                                              |       |
|     | 67              |            |       |                |     |     |     |      |                                              |       |
|     | 88              |            |       |                |     |     |     |      |                                              |       |
| 45  | 113             |            |       |                |     |     |     |      |                                              | 43.0' |
|     | 232             | S-10       | 45.0' | 45.5'          | 140 | --  | --  | 4"   | Dark Grey CF GRAVEL and, Brown CF Sand, some |       |
|     | 253             |            |       |                | .5' |     |     |      | (-) Silt.                                    |       |
|     | 105             |            |       |                |     |     |     |      |                                              |       |
| 50  | 87              |            |       |                |     |     |     |      |                                              |       |
| XXX | 90              |            |       |                |     |     |     |      |                                              |       |
|     | 65              | S-11       | 50.0' | 51.5'          | *32 | *27 | *25 | 3"   | SAME                                         |       |
|     | 115             |            |       |                |     |     |     |      |                                              |       |
|     | 124             |            |       |                |     |     |     |      |                                              |       |
| 55  | 98              |            |       |                |     |     |     |      |                                              |       |
| XXX | 96              |            |       |                |     |     |     |      |                                              |       |
|     |                 | S-12       | 55.0' | 56.5'          | *56 | *18 | *17 | 5"   | Brown CF Sand, some (-) Silt, some (+) CF    |       |
|     |                 |            |       |                |     |     |     |      | Gravel.                                      | 56.5' |
| 60  |                 |            |       |                |     |     |     |      |                                              |       |
| XXX |                 |            |       |                |     |     |     |      |                                              |       |
|     |                 |            |       |                |     |     |     |      |                                              |       |
|     |                 |            |       |                |     |     |     |      |                                              |       |
| 65  |                 |            |       |                |     |     |     |      |                                              |       |
| XXX |                 |            |       |                |     |     |     |      |                                              |       |
|     |                 |            |       |                |     |     |     |      |                                              |       |
|     |                 |            |       |                |     |     |     |      |                                              |       |
| 70  |                 |            |       |                |     |     |     |      |                                              |       |
| XXX |                 |            |       |                |     |     |     |      |                                              |       |
|     |                 |            |       |                |     |     |     |      |                                              |       |
|     |                 |            |       |                |     |     |     |      |                                              |       |
| 75  |                 |            |       |                |     |     |     |      |                                              |       |
| XXX |                 |            |       |                |     |     |     |      |                                              |       |
|     |                 |            |       |                |     |     |     |      |                                              |       |
|     |                 |            |       |                |     |     |     |      |                                              |       |
| 80  |                 |            |       |                |     |     |     |      |                                              |       |
| XXX |                 |            |       |                |     |     |     |      |                                              |       |

BOTTOM OF HOLE

\* Sample was taken with 300 lb. weight.

Nominal I.D. of Drive Pipe 2½" XXX

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

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New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: **Steam Plant Boring**TEST HOLE NO. **447W - 69**SECTION: **Hoboken Terminal Yard**

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: **Bronston** DATE STARTED: **8/2/79**Elevation G.W.T.  
0 Hr. 5.5' From Surface Date: **8/6/79**  
24 Hr. Date:INSPECTOR: **Henry** DATE COMPLETED: **8/3/79**

ft. P.P. Installed Date:

| CASING BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |       |    |    |     | REC. | Sample ID and Profile Change                          |       |
|--------------|------------|-------|----------------|-------|----|----|-----|------|-------------------------------------------------------|-------|
|              |            |       | 0              | 6     | 12 | 18 |     |      |                                                       |       |
| 3            | S-1        | 0.0'  | 1.5'           | 4     | 5  | 12 | 11" |      | Black CF Sand, and Silt, little CF Gravel. (Cinders). |       |
| 70           |            |       |                |       |    |    |     |      |                                                       |       |
| 52           |            |       |                |       |    |    |     |      |                                                       |       |
| 26           |            |       |                |       |    |    |     |      |                                                       |       |
| 5            | 10         |       |                |       |    |    |     |      | Fill                                                  |       |
| 8            | S-2        | 5.0'  | 6.5'           | 25    | 10 | 3  | 4"  |      | SAME (Cinder)                                         |       |
| 8            |            |       |                |       |    |    |     |      |                                                       | 7.0'  |
| 3            |            |       |                |       |    |    |     |      |                                                       |       |
| 2            |            |       |                |       |    |    |     |      |                                                       |       |
| 10           | 2          |       |                |       |    |    |     |      |                                                       |       |
| 2            | S-3        | 10.0' | 11.5'          | 1     | 1  | 1  | 12" |      | Black Organic SILT.                                   |       |
| 2            |            |       |                |       |    |    |     |      |                                                       |       |
| 2            |            |       |                |       |    |    |     |      |                                                       |       |
| 2            |            |       |                |       |    |    |     |      |                                                       |       |
| 15           | 4          | S-4   | 15.0'          | 16.5' | 1  | 0  | 0   | 18"  | Black Organic SILT trace VEGATATION.                  |       |
| 5            |            |       |                |       |    |    |     |      |                                                       |       |
| 4            |            |       |                |       |    |    |     |      |                                                       |       |
| 4            |            |       |                |       |    |    |     |      |                                                       |       |
| 20           | 7          | S-5   | 20.0'          | 21.5' | 1  | 1  | 2   | 18"  | Black Organic SILT and PEAT.                          |       |
| 7            |            |       |                |       |    |    |     |      |                                                       |       |
| 10           |            |       |                |       |    |    |     |      |                                                       |       |
| 16           |            |       |                |       |    |    |     |      |                                                       |       |
| 25           | 22         |       |                |       |    |    |     |      |                                                       |       |
| 16           | S-6        | 25.0' | 26.5'          | 13    | 8  | 10 | 18" |      | Brown PEAT                                            | 25.5' |
| 29           |            |       |                |       |    |    |     |      | Grey MF SAND, some (-) Silt.                          |       |
| 28           |            |       |                |       |    |    |     |      |                                                       |       |
| 33           |            |       |                |       |    |    |     |      |                                                       |       |
| 30           | 33         |       |                |       |    |    |     |      |                                                       |       |
| 16           | S-7        | 30.0' | 31.5'          | 12    | 18 | 24 | 9"  |      | SAME                                                  |       |
| 36           |            |       |                |       |    |    |     |      |                                                       |       |
| 40           |            |       |                |       |    |    |     |      |                                                       |       |
| 33           |            |       |                |       |    |    |     |      |                                                       |       |
| 35           | 36         |       |                |       |    |    |     |      |                                                       | 35.0' |
| 41           | S-8        | 35.0' | 36.5'          | 10    | 13 | 17 | 18" |      | Grey SILT varved with trace Grey CLAY.                |       |
| 46           |            |       |                |       |    |    |     |      |                                                       |       |
| 53           |            |       |                |       |    |    |     |      |                                                       |       |
| 48           |            |       |                |       |    |    |     |      |                                                       |       |
| 40           | 39         |       |                |       |    |    |     |      |                                                       |       |

|                                          |          |     |
|------------------------------------------|----------|-----|
| Nominal I.D. of Drive Pipe               | 2½"      | XXX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |     |
| Weight of hammer on Drive Pipe           | 300 lbs. |     |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |     |
| Drop of hammer on Drive Pipe             | 24"      |     |
| Drop of hammer on Split Barrel Sampler   | 30"      |     |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

TEST HOLE NO. 447W - 69

STATION:                      OFFSET:                      REFERENCE LINE:                      GROUND LINE ELEVATION:

Elevation G.W.T.

|        |                   |              |
|--------|-------------------|--------------|
| 0 Hr.  | 5.5' From Surface | Date: 8/6/79 |
| 24 Hr. |                   | Date:        |

\_\_\_\_\_ ft. P.P. Installed      Date:

BOTTOM OF HOLE

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Core Dig. \_\_\_\_\_

### Inferred Change in Strata

ROUTE: LOCAL NAME: Steam Plant Boring

TEST HOLE NO. 447W - 70

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: Gervasio

DATE STARTED: 7/26/79

Elevation G.W.T.

0 Hr. Water 8' From Top

Date: 7/31/79

24 Hr. Water 7' From Top

Date: 8/1/79

25 ft. P.P. Installed

Date: 7/31/79

INSPECTOR: Henry

DATE COMPLETED: 7/30/79

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |    |    | REC. | Sample ID<br>and<br>Profile Change                                 |       |
|-----------------|------------|-------|----------------|----|----|----|------|--------------------------------------------------------------------|-------|
|                 |            |       | 0              | 6  | 12 | 18 |      |                                                                    |       |
| 15              | S-1        | 0.0'  | 1.5'           | 7  | 9  | 32 | 14"  | Black CF SAND, some Silt, little CF Gravel (Cinders).              |       |
| 60              |            |       |                |    |    |    |      |                                                                    |       |
| 39              |            |       |                |    |    |    |      |                                                                    |       |
| 21              |            |       |                |    |    |    |      |                                                                    |       |
| 5               | 11         |       |                |    |    |    |      |                                                                    |       |
| 15              | S-2        | 5.0'  | 6.5'           | 3  | 3  | 2  | 9"   | SAME                                                               |       |
| 14              |            |       |                |    |    |    |      |                                                                    |       |
| 9               |            |       |                |    |    |    |      |                                                                    |       |
| 8               |            |       |                |    |    |    |      |                                                                    |       |
| 10              | 6          |       |                |    |    |    |      |                                                                    |       |
| 3               | S-3        | 10.0' | 11.5'          | 4  | 3  | 2  | 5"   | Black CF SAND, and (-) Silt.                                       |       |
| 5               |            |       |                |    |    |    |      |                                                                    | 12.0' |
| 6               |            |       |                |    |    |    |      |                                                                    |       |
| 6               |            |       |                |    |    |    |      |                                                                    |       |
| 15              | 6          |       |                |    |    |    |      |                                                                    |       |
| 7               | S-4        | 15.0' | 16.5'          | 2  | 2  | 1  | 12"  | Black ORGANIC SILT trace, CF Sand.                                 |       |
| 8               |            |       |                |    |    |    |      |                                                                    |       |
| 8               |            |       |                |    |    |    |      |                                                                    |       |
| 7               |            |       |                |    |    |    |      |                                                                    |       |
| 20              | 7          |       |                |    |    |    |      |                                                                    |       |
| 6               | S-5        | 20.0' | 21.5'          | 2  | 1  | 1  | 18"  | SAME                                                               | 20.5' |
| 7               |            |       |                |    |    |    |      | Brown PEAT                                                         |       |
| 12              |            |       |                |    |    |    |      |                                                                    |       |
| 11              |            |       |                |    |    |    |      |                                                                    |       |
| 25              | 11         |       |                |    |    |    |      |                                                                    |       |
| 14              | S-6        | 25.0' | 26.5'          | 8  | 7  | 8  | 13"  | SAME                                                               | 26.0' |
| 12              |            |       |                |    |    |    |      | Grey MF SAND, some (-) Silt.                                       |       |
| 35              |            |       |                |    |    |    |      |                                                                    |       |
| 22              |            |       |                |    |    |    |      |                                                                    |       |
| 30              | 19         |       |                |    |    |    |      |                                                                    |       |
| 28              | S-7        | 30.0' | 31.5'          | 13 | 11 | 15 | 15"  | Grey MF SAND, little Silt.                                         |       |
| 39              |            |       |                |    |    |    |      |                                                                    |       |
| 34              |            |       |                |    |    |    |      |                                                                    |       |
| 34              |            |       |                |    |    |    |      |                                                                    |       |
| 35              | 37         |       |                |    |    |    |      |                                                                    |       |
| 28              | S-8        | 35.0' | 36.5'          | 13 | 13 | 12 | 14"  | Red Brown & Grey F Sand and Silt, varved with traces(+) Grey CLAY. |       |
| 32              |            |       |                |    |    |    |      |                                                                    |       |
| 36              |            |       |                |    |    |    |      |                                                                    |       |
| 33              |            |       |                |    |    |    |      |                                                                    |       |
| 40              | 34         |       |                |    |    |    |      |                                                                    |       |

|                                          |          |     |
|------------------------------------------|----------|-----|
| Nominal I.D. of Drive Pipe               | 2½"      | XXX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |     |
| Weight of hammer on Drive Pipe           | 300 lbs. |     |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |     |
| Drop of hammer on Drive Pipe             | 24"      |     |
| Drop of hammer on Split Barrel Sampler   | 30"      |     |

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New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: Steam Plant Boring

TEST HOLE NO. 447W - 70

SECTION: Hoboken Terminal Yard

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: Gervasio DATE STARTED: 7/26/79

Elevation G.W.T.  
 0 Hr. Water 8' From Top Date: 7/31/79  
 24 Hr. Water 7' From Top Date: 8/1/79  
 25 ft. P.P. Installed Date: 7/31/79

INSPECTOR: Henry DATE COMPLETED: 7/30/79

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |       |     |     | REC. | Sample ID<br>and<br>Profile Change             | 25 ft. P.P. Installed      | Date: 7/31/79 |
|-----------------|------------|-------|----------------|-------|-----|-----|------|------------------------------------------------|----------------------------|---------------|
|                 |            |       | 0              | 6     | 12  | 18  |      |                                                |                            |               |
| 39              | S-9        | 40.0' | 41.5'          | 5     | 10  | 16  | 17"  | Brown & Grey SILT varved with trace Grey CLAY. |                            |               |
| 38              |            |       |                |       |     |     |      |                                                |                            |               |
| 37              |            |       |                |       |     |     |      |                                                |                            |               |
| 35              |            |       |                |       |     |     |      |                                                |                            |               |
| 45              | 56         |       |                |       |     |     |      |                                                |                            | 44.0'         |
| 165             | S-10       | 45.0' | 46.5'          | 125   | *55 | *30 | 17"  | Brown CF Sand, some (-) Silt, and CF Gravel.   |                            |               |
| 160             |            |       |                |       |     |     |      |                                                |                            |               |
| 287             |            |       |                |       |     |     |      |                                                |                            |               |
| 50              | 293        |       |                |       |     |     |      |                                                |                            |               |
| XXX             | 200        | S-11  | 50.0'          | 50.1' | 140 | --  | --   | 0"                                             | Grey CF SAND (Wash Sample) | 50.1'         |
|                 |            |       |                | .1'   |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
| 55              |            |       |                |       |     |     |      |                                                |                            |               |
| XXX             |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
| 60              |            |       |                |       |     |     |      |                                                |                            |               |
| XXX             |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
| 65              |            |       |                |       |     |     |      |                                                |                            |               |
| XXX             |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
| 70              |            |       |                |       |     |     |      |                                                |                            |               |
| XXX             |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
| 75              |            |       |                |       |     |     |      |                                                |                            |               |
| XXX             |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
|                 |            |       |                |       |     |     |      |                                                |                            |               |
| 80              |            |       |                |       |     |     |      |                                                |                            |               |
| XXX             |            |       |                |       |     |     |      |                                                |                            |               |

BOTTOM OF HOLE

\* Sample was taken with 300 lb. weight.

Nominal I.D. of Drive Pipe 2½" XXX

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
 Soils Bureau

Core Dia. \_\_\_\_\_

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 after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

|                                       |                                             |                                                                                                                                                             |
|---------------------------------------|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ROUTE:                                | LOCAL NAME: <b>Waste Treatment Facility</b> | TEST HOLE NO. <b>447W - 1</b>                                                                                                                               |
| SECTION: <b>Con-Rail Hoboken Yard</b> |                                             |                                                                                                                                                             |
| STATION:                              | OFFSET:                                     | REFERENCE LINE:                                                                                                                                             |
|                                       |                                             | GROUND LINE ELEVATION: <b>11.3'</b>                                                                                                                         |
| BORINGS MADE BY: <b>Johannes</b>      |                                             | DATE STARTED: <b>10/12/77</b>                                                                                                                               |
| INSPECTOR: <b>Henry</b>               |                                             | DATE COMPLETED: <b>10/19/77</b>                                                                                                                             |
|                                       |                                             | Elevation G.W.T.<br>0 Hr. 8.0' Down, Caved in & Dry Date: <b>10/19/77</b><br>24 Hr. 5.0' Down Date: <b>10/20/77</b><br>_____ ft. P.P. Installed Date: _____ |

|    | CASING BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |      |       | REC. | Sample ID and Profile Change |                                                                            |
|----|--------------|------------|-------|----------------|------|-------|------|------------------------------|----------------------------------------------------------------------------|
|    |              |            |       | 0-6            | 6-12 | 12-18 |      |                              |                                                                            |
| 5  | 9            | S-1        | 0.0'  | 1.5'           | 3    | 4     | 7    | 2"                           | Brown CF Sand, little Silt, and CF Gravel (gravel portion COAL)            |
|    | 7            |            |       |                |      |       |      |                              |                                                                            |
|    | 7            |            |       |                |      |       |      |                              |                                                                            |
|    | 5            |            |       |                |      |       |      |                              |                                                                            |
|    | 5            |            |       |                |      |       |      |                              |                                                                            |
| 10 | 4            | S-2        | 5.0'  | 6.5'           | 2    | 4     | 4    | 5"                           | Black CF SAND, little (+) Silt, trace (-) F Gravel (all cinders and ashes) |
|    | 5            |            |       |                |      |       |      |                              |                                                                            |
|    | 3            |            |       |                |      |       |      |                              |                                                                            |
|    | 3            |            |       |                |      |       |      |                              |                                                                            |
|    | 7            |            |       |                |      |       |      |                              |                                                                            |
| 15 | 9            | S-3        | 10.0' | 11.5'          | 4    | 5     | 4    | 3"                           | Black SILT some, CF Sand, little MF Gravel (all cinders and ashes)         |
|    | 11           |            |       |                |      |       |      |                              |                                                                            |
|    | 10           |            |       |                |      |       |      |                              |                                                                            |
|    | 7            |            |       |                |      |       |      |                              |                                                                            |
|    | 10           |            |       |                |      |       |      |                              | 14.0'                                                                      |
| 20 | 14           | S-4        | 15.0' | 16.5'          | 4    | 3     | 3    | 18"                          | Black ORGANIC SILT.                                                        |
|    | 18           |            |       |                |      |       |      |                              |                                                                            |
|    | 14           |            |       |                |      |       |      |                              |                                                                            |
|    | 12           |            |       |                |      |       |      |                              |                                                                            |
|    | 13           |            |       |                |      |       |      |                              |                                                                            |
| 25 | 13           | S-5        | 20.0' | 21.5'          | 2    | 2     | 1    | 18"                          | Brown SAME with trace of reeds.                                            |
|    | 21           |            |       |                |      |       |      |                              |                                                                            |
|    | 23           |            |       |                |      |       |      |                              |                                                                            |
|    | 25           |            |       |                |      |       |      |                              |                                                                            |
|    | 26           |            |       |                |      |       |      |                              | 25.0'                                                                      |
| 30 | 67           | S-6        | 25.0' | 26.5'          | 8    | 12    | 17   | 18"                          | Brown PEAT                                                                 |
|    | 85           |            |       |                |      |       |      |                              | 26.0'                                                                      |
|    | 62           |            |       |                |      |       |      |                              |                                                                            |
|    | 44           |            |       |                |      |       |      |                              |                                                                            |
|    | 52           |            |       |                |      |       |      |                              |                                                                            |
| 35 | 55           | S-7        | 30.0' | 31.5'          | 20   | 15    | 14   | 14"                          | Grey SILT and CF Sand.                                                     |
|    | 54           |            |       |                |      |       |      |                              |                                                                            |
|    | 55           |            |       |                |      |       |      |                              |                                                                            |
|    | 95           |            |       |                |      |       |      |                              |                                                                            |
|    | 101          |            |       |                |      |       |      |                              |                                                                            |
| 40 | 221          | S-8        | 35.0' | 36.5'          | 40   | 79    | 90   | 14"                          | Reddish Brown CF SAND, some Silt, little CF Gravel.                        |
|    | 246          |            |       |                |      |       |      |                              |                                                                            |
|    | 162          |            |       |                |      |       |      |                              |                                                                            |
|    | 81           |            |       |                |      |       |      |                              |                                                                            |
|    | 77           |            |       |                |      |       |      |                              |                                                                            |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

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New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata -----

STATION:                      OFFSET:                      REFERENCE LINE:                      GROUND LINE ELEVATION: 11.3'

INSPECTOR: **Henry**                      DATE COMPLETED: **10/19/77**

**Inferred Change in Strata** 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

ROUTE: LOCAL NAME: Waste Treatment Facility

TEST HOLE NO. 447W - 2

SECTION: Con-Rail Hoboken Yard

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: 6.9'

BORINGS MADE BY: Johannes DATE STARTED: 10/21/77

Elevation G.W.T.

0 Hr. 6' Down Date: 10/27/77

INSPECTOR: Henry DATE COMPLETED: 10/27/77

24 Hr. 4' Down, Filled in &amp; Dry Date: 10/28/77

ft. P.P. Installed Date:

| CASING BLOWS | SAMPLE NO. DEPTH. |       |       | Blows on Spoon |    |    | REC. | Sample ID and Profile Change                                |  |       |
|--------------|-------------------|-------|-------|----------------|----|----|------|-------------------------------------------------------------|--|-------|
|              |                   |       |       | 0              | 6  | 12 |      |                                                             |  |       |
| 39           | S-1               | 0.0'  | 1.5'  | 7              | 15 | 14 | 5"   | Dark Brown-Black CF Sand, and Silt, some (-) MF Gravel.     |  | 1.0'  |
| 181          |                   |       |       |                |    |    |      | Concrete                                                    |  | 1.5'  |
| 38           |                   |       |       |                |    |    |      |                                                             |  |       |
| 27           |                   |       |       |                |    |    |      |                                                             |  |       |
| 33           |                   |       |       |                |    |    |      |                                                             |  |       |
| 32           | S-2               | 5.0'  | 6.5'  | 13             | 10 | 8  | 1"   | Brown CF Sand, some Silt, some CF Gravel.                   |  |       |
| 34           |                   |       |       |                |    |    |      |                                                             |  |       |
| 20           |                   |       |       |                |    |    |      |                                                             |  |       |
| 15           |                   |       |       |                |    |    |      |                                                             |  |       |
| 10           |                   |       |       |                |    |    |      |                                                             |  |       |
| 9            | S-3               | 10.0' | 11.5' | 1              | 3  | 5  | 2"   | Dark Brown-Black CF Sand, trace Silt, trace (+) C Gravel.   |  |       |
| 8            |                   |       |       |                |    |    |      |                                                             |  |       |
| 9            |                   |       |       |                |    |    |      |                                                             |  |       |
| 10           |                   |       |       |                |    |    |      |                                                             |  |       |
| 10           |                   |       |       |                |    |    |      |                                                             |  |       |
| 14           | S-4               | 15.0' | 16.5' | 5              | 2  | 3  | 4"   | Dark Brown-Black CF SAND, trace Silt.                       |  |       |
| 13           |                   |       |       |                |    |    |      |                                                             |  |       |
| 11           |                   |       |       |                |    |    |      |                                                             |  |       |
| 9            |                   |       |       |                |    |    |      |                                                             |  |       |
| 13           |                   |       |       |                |    |    |      |                                                             |  |       |
| 15           | S-5               | 20.0' | 21.5' | 4              | 2  | 3  | 2"   | Black CF SAND, trace (-) Silt, trace F Gravel (coal, brick) |  |       |
| 13           |                   |       |       |                |    |    |      |                                                             |  |       |
| 10           |                   |       |       |                |    |    |      |                                                             |  |       |
| 10           |                   |       |       |                |    |    |      |                                                             |  |       |
| 12           |                   |       |       |                |    |    |      |                                                             |  |       |
| 10           | S-6               | 25.0' | 26.5' | 2              | 2  | 2  | 2"   | Black MF SAND, and (-) Silt.                                |  |       |
| 12           |                   |       |       |                |    |    |      |                                                             |  |       |
| 14           |                   |       |       |                |    |    |      |                                                             |  |       |
| 16           |                   |       |       |                |    |    |      |                                                             |  |       |
| 15           |                   |       |       |                |    |    |      |                                                             |  | 29.0' |
| 15           | S-7               | 30.0' | 31.5' | 4              | 5  | 6  | 8"   | Black SILT and, CF Gravel, trace CF Sand (COAL)             |  |       |
| 22           |                   |       |       |                |    |    |      |                                                             |  |       |
| 25           |                   |       |       |                |    |    |      |                                                             |  |       |
| 28           |                   |       |       |                |    |    |      |                                                             |  |       |
| 29           |                   |       |       |                |    |    |      |                                                             |  |       |
| 55           | S-8               | 35.0' | 36.5' | 8              | 17 | 15 | 18"  | Grey Silty CLAY little, MF Sand.                            |  |       |
| 139          |                   |       |       |                |    |    |      |                                                             |  |       |
| 153          |                   |       |       |                |    |    |      |                                                             |  |       |
| 174          |                   |       |       |                |    |    |      |                                                             |  |       |
| 181          |                   |       |       |                |    |    |      |                                                             |  |       |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

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New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 3**SECTION: **Con-Rail Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **9.8'**BORINGS MADE BY: **Johannes** DATE STARTED: **10/28/77**Elevation G.W.T.  
0 Hr. **4.0' Down** Date: **11/10/77**  
24 Hr. **SAME** Date: **11/14/77**INSPECTOR: **Henry** DATE COMPLETED: **11/10/77**

ft. P.P. Installed Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |     |    |    | REC. | Sample ID<br>and<br>Profile Change                                           |
|-----------------|------------|-------|----------------|-----|----|----|------|------------------------------------------------------------------------------|
|                 |            |       | 0              | 6   | 12 | 18 |      |                                                                              |
| 28              | S-1        | 0.0'  | 1.5'           | 8   | 12 | 14 | 6"   | Black CF SAND, some (-) Silt, little MF Gravel<br>(mostly Cinders and Ashes) |
| 15              |            |       |                |     |    |    |      |                                                                              |
| 18              |            |       |                |     |    |    |      |                                                                              |
| 21              |            |       |                |     |    |    |      |                                                                              |
| 25              |            |       |                |     |    |    |      |                                                                              |
| 21              | S-2        | 5.0'  | 6.5'           | 2   | 3  | 5  | 2"   | Dark Grey CF SAND, trace (+) Silt, trace F<br>Gravel (All Cinders)           |
| 49              |            |       |                |     |    |    |      |                                                                              |
| 70              |            |       |                |     |    |    |      |                                                                              |
| 181             |            |       |                |     |    |    |      |                                                                              |
| 526             |            |       |                |     |    |    |      |                                                                              |
| 79              | S-3        | 10.0' | 10.5'          | 100 | -- | -- | 4"   | SAME with TIMBER and two pieces C Gravel<br>(Cinders and Ashes)              |
| 21              |            |       |                |     |    |    |      |                                                                              |
| 12              |            |       |                |     |    |    |      |                                                                              |
| 10              |            |       |                |     |    |    |      |                                                                              |
| 9               |            |       |                |     |    |    |      | 14.0'                                                                        |
| 8               | S-4        | 15.0' | 16.5'          | 2   | 1  | 2  | 2"   | Dark Brown Organic SILT trace, Fibers, trace<br>(-) F Gravel.                |
| 8               |            |       |                |     |    |    |      |                                                                              |
| 5               |            |       |                |     |    |    |      |                                                                              |
| 10              |            |       |                |     |    |    |      |                                                                              |
| 12              |            |       |                |     |    |    |      |                                                                              |
| 10              | S-5        | 20.0' | 21.5'          | 2   | 2  | 2  | 4"   | Grey-Brown Organic SILT trace, F Gravel.                                     |
| 12              |            |       |                |     |    |    |      |                                                                              |
| 11              |            |       |                |     |    |    |      |                                                                              |
| 10              |            |       |                |     |    |    |      |                                                                              |
| 12              |            |       |                |     |    |    |      |                                                                              |
| 8               | S-6        | 25.0' | 26.5'          | 1   | 2  | 2  | 12"  | SAME                                                                         |
| 11              |            |       |                |     |    |    |      |                                                                              |
| 14              |            |       |                |     |    |    |      |                                                                              |
| 12              |            |       |                |     |    |    |      |                                                                              |
| 15              |            |       |                |     |    |    |      | 29.0'                                                                        |
| 20              | S-7        | 30.0' | 31.5'          | 5   | 5  | 7  | 4"   | Grey F Sand, and Silt, trace WOOD.                                           |
| 25              |            |       |                |     |    |    |      |                                                                              |
| 30              |            |       |                |     |    |    |      |                                                                              |
| 42              |            |       |                |     |    |    |      |                                                                              |
| 58              |            |       |                |     |    |    |      |                                                                              |
| 49              | S-8        | 35.0' | 36.5'          | 15  | 18 | 17 | 18"  | Grey MF SAND, little (+) Silt.                                               |
| 57              |            |       |                |     |    |    |      |                                                                              |
| 61              |            |       |                |     |    |    |      |                                                                              |
| 72              |            |       |                |     |    |    |      |                                                                              |
| 68              |            |       |                |     |    |    |      |                                                                              |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

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New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

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Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 4**SECTION: **ConRail - Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **8.1'**BORINGS MADE BY: **Johannes** DATE STARTED: **12/1/77**

Elevation G.W.T.

0 Hr. **Filled in 2' Down**Date: **12/9/77**INSPECTOR: **Henry** DATE COMPLETED: **12/9/77**

24-Hr.

Date:

ft. P.P. Installed

Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |         |          |          | REC. | Sample ID<br>and<br>Profile Change                                    |
|-----------------|------------|-------|----------------|---------|----------|----------|------|-----------------------------------------------------------------------|
|                 |            |       | 0<br>6         | 6<br>12 | 12<br>18 | 18<br>24 |      |                                                                       |
| 20              | S-1        | 0.0'  | 1.5'           | 9       | 10       | 9        | 5"   | Black CF SAND, some (-) Silt, trace (+) F<br>Gravel (Mostly Cinders). |
| 16              |            |       |                |         |          |          |      |                                                                       |
| 15              |            |       |                |         |          |          |      |                                                                       |
| 12              |            |       |                |         |          |          |      |                                                                       |
| 12              |            |       |                |         |          |          |      |                                                                       |
| 7               | S-2        | 5.0'  | 6.5'           | 7       | 5        | 5        | 2"   | SAME                                                                  |
| 7               |            |       |                |         |          |          |      |                                                                       |
| 6               |            |       |                |         |          |          |      |                                                                       |
| 6               |            |       |                |         |          |          |      |                                                                       |
| 5               |            |       |                |         |          |          |      |                                                                       |
| 5               | S-3        | 10.0' | 11.5'          | 8       | 4        | 4        | 1"   | Black CF SAND, trace (-) Silt, some MF Gravel<br>(All Cinders).       |
| 9               |            |       |                |         |          |          |      |                                                                       |
| 11              |            |       |                |         |          |          |      |                                                                       |
| 12              |            |       |                |         |          |          |      |                                                                       |
| 14              |            |       |                |         |          |          |      |                                                                       |
| 12              | S-4        | 15.0' | 16.5'          | 11      | 6        | 8        | 1"   | 1 piece GRAVEL (3" X 1")                                              |
| 16              |            |       |                |         |          |          |      |                                                                       |
| 18              |            |       |                |         |          |          |      |                                                                       |
| 18              |            |       |                |         |          |          |      |                                                                       |
| 20              |            |       |                |         |          |          |      |                                                                       |
| 20              | S-5        | 20.0' | 21.5'          | 5       | 3        | 3        | 8"   | Brown to Grey CF Sand, and (-) Silt, and (-)<br>CF Gravel.            |
| 19              |            |       |                |         |          |          |      |                                                                       |
| 19              |            |       |                |         |          |          |      |                                                                       |
| 23              |            |       |                |         |          |          |      |                                                                       |
| 27              |            |       |                |         |          |          |      |                                                                       |
| 20              | S-6        | 25.0' | 26.5'          | 3       | 2        | 1        | 16"  | Black Organic SILT.                                                   |
| 26              |            |       |                |         |          |          |      |                                                                       |
| 27              |            |       |                |         |          |          |      |                                                                       |
| 31              |            |       |                |         |          |          |      |                                                                       |
| 30              |            |       |                |         |          |          |      |                                                                       |
| 28              | S-7        | 30.0' | 31.5'          | 3       | 3        | 4        | 18"  | SAME                                                                  |
| 30              |            |       |                |         |          |          |      |                                                                       |
| 32              |            |       |                |         |          |          |      |                                                                       |
| 28              |            |       |                |         |          |          |      |                                                                       |
| 31              |            |       |                |         |          |          |      |                                                                       |
| 40              | S-8        | 35.0' | 36.5'          | 2       | 3        | 6        | 18"  | SAME                                                                  |
| 45              |            |       |                |         |          |          |      |                                                                       |
| 36              |            |       |                |         |          |          |      |                                                                       |
| 33              |            |       |                |         |          |          |      |                                                                       |
| 30              |            |       |                |         |          |          |      |                                                                       |

Fill

21.0'

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification  
after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 4**SECTION: **ConRail - Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **8.1'**BORINGS MADE BY: **Johannes** DATE STARTED: **12/1/77**Elevation G.W.T.  
0 Hr. **Filled in 2' Down** Date: **12/9/77**INSPECTOR: **Henry** DATE COMPLETED: **12/9/77**

24-Hr. \_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |     |    | REC. | Sample ID<br>and<br>Profile Change                                        |       |
|-----------------|------------|-------|----------------|----|-----|----|------|---------------------------------------------------------------------------|-------|
|                 |            |       | 0              | 6  | 12  | 18 |      |                                                                           |       |
| 170             | S-9        | 40.0' | 41.5'          | 4  | 5   | 6  | 18"  | Black Organic SILT trace, MF Sand.                                        |       |
| 508             |            |       |                |    |     |    |      |                                                                           | 42.0' |
| 185             |            |       |                |    |     |    |      |                                                                           |       |
| 146             |            |       |                |    |     |    |      |                                                                           |       |
| 154             |            |       |                |    |     |    |      |                                                                           |       |
| 45              | S-10       | 45.0' | 46.0'          | 36 | 125 | -- | 12"  | Grey MF Sand, and Silt, trace (-) Veg.<br>1 piece BASALT in tip of spoon. | 46.0' |
|                 |            |       |                |    |     |    |      |                                                                           |       |
| 50              |            |       |                |    |     |    |      |                                                                           |       |
| XX              |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
| 15              |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
| 20              |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
| 25              |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
| 30              |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
| 35              |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
|                 |            |       |                |    |     |    |      |                                                                           |       |
| 40              |            |       |                |    |     |    |      |                                                                           |       |

BOTTOM OF HOLE

\* 170 with 140 lb. weight

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification  
after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_





|                                        |                                             |                                                                                                                                                              |
|----------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ROUTE:                                 | LOCAL NAME: <b>Waste Treatment Facility</b> | TEST HOLE NO. <b>447W - 7</b>                                                                                                                                |
| SECTION: <b>Con-Rail, Hoboken Yard</b> |                                             |                                                                                                                                                              |
| STATION:                               | OFFSET:                                     | REFERENCE LINE:                                                                                                                                              |
|                                        |                                             | GROUND LINE ELEVATION: <b>7.9'</b>                                                                                                                           |
| BORINGS MADE BY: <b>Servillo</b>       |                                             | DATE STARTED: <b>3/23/78</b>                                                                                                                                 |
| INSPECTOR: <b>Henry</b>                |                                             | DATE COMPLETED: <b>3/29/78</b>                                                                                                                               |
|                                        |                                             | Elevation G.W.T. <b>4.6'</b> Date: <b>3/29/78</b><br>0 Hr. <b>SAME</b> Date: <b>3/30/78</b><br>24 Hr. <b>35</b> ft. P.P. Installed      Date: <b>3/29/78</b> |

|    | CASING BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |    |    |     | REC. | Sample ID and Profile Change                                                     |  |
|----|--------------|------------|-------|----------------|----|----|----|-----|------|----------------------------------------------------------------------------------|--|
|    |              |            |       | 0              | 6  | 12 | 18 |     |      |                                                                                  |  |
|    | 53           | S-1        | 0.0'  | 1.5'           |    |    |    |     |      | Black CF Sand, some Silt, some CF Gravel.                                        |  |
|    | 47           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 23           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 10           |            |       |                |    |    |    |     |      |                                                                                  |  |
| 5  | 8            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 9            | S-2        | 5.0'  | 6.5'           | 7  | 6  | 4  | 2"  |      | Brown CF Sand, and (+) CF Gravel, trace Silt (Concrete and Ashes).               |  |
|    | 6            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 4            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 4            |            |       |                |    |    |    |     |      |                                                                                  |  |
| 10 | 2            |            |       |                |    |    |    |     |      | Fill                                                                             |  |
|    | 7            | S-3        | 10.0' | 11.5'          | 2  | 1  | 1  | 4"  |      | Brown CF SAND, little (+) Silt, little (+) MF Gravel (Wood, Concrets and Ashes). |  |
|    | 4            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 4            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 4            |            |       |                |    |    |    |     |      |                                                                                  |  |
| 15 | 2            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 7            | S-4        | 15.0' | 16.5'          | 1  | 1  | 1  | 10" |      | Dark Brown PEAT and Organic SILT.                                                |  |
|    | 5            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 4            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 4            |            |       |                |    |    |    |     |      |                                                                                  |  |
| 20 | 4            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 10           | S-5        | 20.0' | 21.5'          | P  | U  | S  | H   | 14"  | Dark Brown Organic SILT and PEAT.                                                |  |
|    | 14           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 9            |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 17           |            |       |                |    |    |    |     |      |                                                                                  |  |
| 25 | 26           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 16           | S-6        | 25.0' | 26.5'          | 31 | 17 | 18 | 15" |      | Grey CF SAND, little Silt.                                                       |  |
|    | 48           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 29           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 39           |            |       |                |    |    |    |     |      |                                                                                  |  |
| 30 | 48           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 33           | S-7        | 30.0' | 31.5'          | 30 | 31 | 19 | 5"  |      | Grey CF SAND, some (-) Silt.                                                     |  |
|    | 58           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 44           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    | 52           |            |       |                |    |    |    |     |      |                                                                                  |  |
| 35 | 78           |            |       |                |    |    |    |     |      |                                                                                  |  |
|    |              | S-8        | 35.0' | 36.5'          | 48 | 57 | 74 | 16" |      | Reddish Brown MF SAND, little Silt.                                              |  |
|    |              |            |       |                |    |    |    |     |      |                                                                                  |  |
|    |              |            |       |                |    |    |    |     |      |                                                                                  |  |
| 40 |              |            |       |                |    |    |    |     |      |                                                                                  |  |

|                                          |          |           |
|------------------------------------------|----------|-----------|
| Nominal I.D. of Drive Pipe               | 2½"      | <b>XX</b> |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |           |
| Weight of hammer on Drive Pipe           | 300 lbs. |           |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |           |
| Drop of hammer on Drive Pipe             | 24"      |           |
| Drop of hammer on Split Barrel Sampler   | 30"      |           |

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

BOTTOM OF HOLE      Date 4/3/78      G.W.T.      Depth 5.0'  
 NOTES: S-1 dug by hand  
 S-5 pushed by hand

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New Jersey Department of Transportation  
Soils Bureau

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 8**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **7.1'**BORINGS MADE BY: **Servillo** DATE STARTED: **3/29/78**

Elevation G.W.T.

0 Hr. **10.5' Down - Water** Date: **4/7/78**INSPECTOR: **Henry** DATE COMPLETED: **4/7/78**24 Hr. **5.0' Down - Water** Date: **4/10/78****33** ft. P.P. Installed Date: **4/7/78**

| CASING BLOWS | SAMPLE NO. DEPTH |       |       | Blows on Spoon |      |       |       | REC. | Sample ID and Profile Change                                           |
|--------------|------------------|-------|-------|----------------|------|-------|-------|------|------------------------------------------------------------------------|
|              |                  |       |       | 0-6            | 6-12 | 12-18 | 18-24 |      |                                                                        |
| 10           | S-1              | 0.0'  | 1.5'  | --             | --   | --    | --    | --   | FILL - Black CF SAND, little Silt, little (+) MF Gravel (All Cinders). |
| 27           |                  |       |       |                |      |       |       |      |                                                                        |
| 8            |                  |       |       |                |      |       |       |      |                                                                        |
| 5            |                  |       |       |                |      |       |       |      |                                                                        |
| 24           |                  |       |       |                |      |       |       |      |                                                                        |
| 25           | S-2              | 5.0'  | 6.5'  | 9              | 6    | 5     | 2"    |      | Dark Brown CF Sand, some Silt, some CF Gravel (Cinders and Ashes).     |
| 40           |                  |       |       |                |      |       |       |      |                                                                        |
| 27           |                  |       |       |                |      |       |       |      |                                                                        |
| 24           |                  |       |       |                |      |       |       |      |                                                                        |
| 37           |                  |       |       |                |      |       |       |      |                                                                        |
| 20           | S-3              | 10.0' | 11.5' | 2              | 12   | 29    | 6"    | WOOD |                                                                        |
| 49           |                  |       |       |                |      |       |       |      |                                                                        |
| 32           |                  |       |       |                |      |       |       |      |                                                                        |
| 34           |                  |       |       |                |      |       |       |      |                                                                        |
| 30           |                  |       |       |                |      |       |       |      |                                                                        |
| 10           | S-4              | 15.0' | 16.5' | 18             | 17   | 9     | 6"    | WOOD |                                                                        |
| 15           |                  |       |       |                |      |       |       |      |                                                                        |
| 54           |                  |       |       |                |      |       |       |      |                                                                        |
| 208          |                  |       |       |                |      |       |       |      |                                                                        |
| 56           |                  |       |       |                |      |       |       |      |                                                                        |
| 15           | S-5              | 20.0' | 21.5' | 65             | 9    | 9     | 1"    |      | 1 piece of GRAVEL. FILL                                                |
| 12           |                  |       |       |                |      |       |       |      |                                                                        |
| 2400         | S-6              | 21.5' | 23.0' | 10             | 13   | 27    | 6"    |      | Gry. CF SAND, some (-) Silt. Approx. Bottom of FILL 23.0'              |
| 14           |                  |       |       |                |      |       |       |      |                                                                        |
| 25           |                  |       |       |                |      |       |       |      |                                                                        |
| 37           | S-7              | 25.0' | 26.5' | 15             | 16   | 14    | 6"    |      | Grey CF SAND, little Silt.                                             |
| 16           |                  |       |       |                |      |       |       |      |                                                                        |
| 14           |                  |       |       |                |      |       |       |      |                                                                        |
| 16           |                  |       |       |                |      |       |       |      |                                                                        |
| 21           |                  |       |       |                |      |       |       |      |                                                                        |
| 25           | S-8              | 30.0' | 31.5' | 21             | 16   | 14    |       |      | Grey CF SAND, trace Silt.                                              |
| 29           |                  |       |       |                |      |       |       |      |                                                                        |
| 24           |                  |       |       |                |      |       |       |      |                                                                        |
| 25           |                  |       |       |                |      |       |       |      |                                                                        |
| 29           |                  |       |       |                |      |       |       |      |                                                                        |
| 27           | S-9              | 35.0' | 36.5' | 7              | 6    | 6     |       |      | Grey Brown Varved Silty CLAY trace, MF Sand.                           |
| 52           |                  |       |       |                |      |       |       |      |                                                                        |
| 94           |                  |       |       |                |      |       |       |      |                                                                        |
| 147          |                  |       |       |                |      |       |       |      |                                                                        |
| 152          |                  |       |       |                |      |       |       |      |                                                                        |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

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Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

**Inferred Change in Strata**

ROUTE: \_\_\_\_\_ LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 9**

SECTION: **Con-Rail, Hoboken Yard**

STATION:                      OFFSET:                      REFERENCE LINE:                      GROUND LINE ELEVATION: 6.8'

BORINGS MADE BY: **Servillo** DATE STARTED: **4/10/78**

INSPECTOR: **Henry** DATE COMPLETED: **4/21/78**

|                  |                      |               |
|------------------|----------------------|---------------|
| Elevation G.W.T. |                      |               |
| 0 Hr.            | 3.8' Filled in & Dry | Date: 4/21/78 |
| 24 Hr.           | SAME                 | Date: 4/24/78 |

|        |                |           |                          |             |
|--------|----------------|-----------|--------------------------|-------------|
| CASING | Blows on Spoon | Sample ID | _____ ft. P.P. Installed | Date: _____ |
|--------|----------------|-----------|--------------------------|-------------|

[illegible]

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

**New Jersey Department of Transportation  
Soils Bureau**

Core Dia. \_\_\_\_\_

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**Approximate Change in Strata** \_\_\_\_\_

**Inferred Change in Strata**



100% of the respondents (n = 100) indicated that they had used the system at least once. The majority of respondents (n = 60) indicated that they had used the system at least once a week. The remaining respondents (n = 40) indicated that they had used the system at least once a month. The results of the survey are summarized in Table 1.

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 12**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **6.2'**BORINGS MADE BY: **Bronston** DATE STARTED: **4/29/78**

Elevation G.W.T.

0 Hr.

Date:

INSPECTOR: **Henry** DATE COMPLETED: **4/30/78**

24 Hr.

Date:

\_\_\_\_\_ ft. P.P. Installed

Date:

| CASING BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |    |    | REC. | Sample ID and Profile Change                                                       |
|--------------|------------|-------|----------------|----|----|----|------|------------------------------------------------------------------------------------|
|              |            |       | 0              | 6  | 12 | 18 |      |                                                                                    |
| 7            |            |       |                |    |    |    |      | <b>CINDERS</b>                                                                     |
| 20           |            |       |                |    |    |    |      |                                                                                    |
| 15           |            |       |                |    |    |    |      |                                                                                    |
| 8            |            |       |                |    |    |    |      |                                                                                    |
| 5            |            |       |                |    |    |    |      |                                                                                    |
| 3            | S-1        | 5.0'  | 6.5'           | 4  | 9  | 14 | 3"   | Black CF SAND, little Silt, little (+) CF Gravel (Mostly Cinders)                  |
| 16           |            |       |                |    |    |    |      |                                                                                    |
| 13           |            |       |                |    |    |    |      |                                                                                    |
| 70           |            |       |                |    |    |    |      |                                                                                    |
| 40           |            |       |                |    |    |    |      |                                                                                    |
| 8            | S-2        | 10.0' | 11.5'          | 6  | 8  | 8  | 4"   | Grey Brown CF Sand, little (+) Silt, some (+) CF Gravel (Mostly Cinders and Ashes) |
| 16           |            |       |                |    |    |    |      |                                                                                    |
| 20           |            |       |                |    |    |    |      |                                                                                    |
| 20           |            |       |                |    |    |    |      |                                                                                    |
| 26           |            |       |                |    |    |    |      |                                                                                    |
| 14           | S-3        | 15.0' | 16.0'          | 23 | 70 | -- | 8"   | Dark Grey CF Micaceous SAND, little Silt, little MF Gravel.                        |
| 13           |            |       |                |    |    |    |      |                                                                                    |
| 4            |            |       |                |    |    |    |      |                                                                                    |
| 23           |            |       |                |    |    |    |      |                                                                                    |
| 33           |            |       |                |    |    |    |      |                                                                                    |
| 6            | S-4        | 20.0' | 21.5'          | 5  | 7  | 6  | 3"   | Grey CF GRAVEL trace, CF Sand (piece of Wood)                                      |
| 21           |            |       |                |    |    |    |      |                                                                                    |
| 7            |            |       |                |    |    |    |      |                                                                                    |
| 9            |            |       |                |    |    |    |      |                                                                                    |
| 30           |            |       |                |    |    |    |      |                                                                                    |
| 22           | S-5        | 25.0' | 26.5'          | 16 | 5  | 8  | 0"   |                                                                                    |
| 17           |            |       |                |    |    |    |      |                                                                                    |
| 28           |            |       |                |    |    |    |      |                                                                                    |
| 25           |            |       |                |    |    |    |      |                                                                                    |
| 21           |            |       |                |    |    |    |      |                                                                                    |
| 275          | S-6        | 30.0' | 31.5'          | 75 | 57 | 17 | 12"  | Grey MF SAND, little (+) Silt (encountered Wood at 30.5')                          |
| 13           |            |       |                |    |    |    |      |                                                                                    |
| 24           |            |       |                |    |    |    |      |                                                                                    |
| 16           |            |       |                |    |    |    |      |                                                                                    |
| 19           |            |       |                |    |    |    |      |                                                                                    |
| 15           | S-7        | 35.0' | 36.5'          | 16 | 12 | 6  | 6"   | WOOD                                                                               |
| 13           |            |       |                |    |    |    |      |                                                                                    |
| 14           |            |       |                |    |    |    |      |                                                                                    |
| 16           |            |       |                |    |    |    |      |                                                                                    |
| 18           |            |       |                |    |    |    |      |                                                                                    |

Nominal I.D. of Drive Pipe 2 1/2" **XX**

Nominal I.D. of Split Barrel Sampler 1 1/2"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

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New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 12**SECTION: **Con-Rail, Hoboken Yare**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **6.2'**BORINGS MADE BY: **Bronston** DATE STARTED: **4/29/78**

Elevation G.W.T.

0 Hr.

Date:

24 Hr.

Date:

INSPECTOR: **Henry** DATE COMPLETED: **4/30/78**

\_\_\_\_\_ ft. P.P. Installed

Date:

|     | CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |     |    | REC. | Sample ID<br>and<br>Profile Change |                                                                |
|-----|-----------------|------------|-------|----------------|-----|----|------|------------------------------------|----------------------------------------------------------------|
|     |                 |            |       | 0              | 6   | 12 |      |                                    |                                                                |
|     | 16              | S-8        | 40.0' | 41.5'          | 14  | 13 | 17   | 17"                                | Grey Brown CF SAND, little Silt (4" Wood at top of sample)     |
|     | 20              |            |       |                |     |    |      |                                    | Fill                                                           |
|     | 37              |            |       |                |     |    |      |                                    |                                                                |
|     | 39              |            |       |                |     |    |      |                                    |                                                                |
| 45  | 42              |            |       |                |     |    |      |                                    |                                                                |
|     | 47              | S-9        | 45.0' | 46.5'          | 21  | 20 | 26   | 7"                                 | Multi-colored CF SAND, little Silt. (Probable decomposed rock) |
|     | 42              |            |       |                |     |    |      |                                    |                                                                |
|     | 60              |            |       |                |     |    |      |                                    |                                                                |
| 50  | 70              |            |       |                |     |    |      |                                    |                                                                |
| XXX | 97              |            |       |                |     |    |      |                                    |                                                                |
|     |                 | S-10       | 50.0' | 51.5'          | 135 | 37 | 35   | 11"                                | Red Brown CF SAND, little Silt, little (-) CF Gravel.          |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
| 55  |                 |            |       |                |     |    |      |                                    |                                                                |
| XX  |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
| 60  |                 |            |       |                |     |    |      |                                    |                                                                |
| XX  |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
| 25  |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
| 30  |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
| 35  |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |
| 40  |                 |            |       |                |     |    |      |                                    |                                                                |
|     |                 |            |       |                |     |    |      |                                    |                                                                |

BOTTOM OF HOLE

## NOTES:

- For first 6" of sample S-10, blows on spoon were 100 for first 3" using 140 lb. hammer, then 35 for last 3" using 300 lb. hammer. The 300 lb. hammer was also used for the last foot of penetration also.
- This boring is the third attempt to penetrate soil. The first and second attempts were stopped by Wood at 9' and 21.5' respectively.

Nominal I.D. of Drive Pipe 2½" **XX**

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

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New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

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Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 15**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **7.8'**BORINGS MADE BY: **Augustine** DATE STARTED: **3/30/78**

Elevation G.W.T.

0 Hr. **6.8'** Filled in & Dry Date: **4/5/78**INSPECTOR: **Henry** DATE COMPLETED: **4/5/78**24 Hr. **SAME** Date: **4/6/78**

ft. P.P. Installed Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |       |         |    | REC. | Sample ID<br>and<br>Profile Change |                              |
|-----------------|------------|-------|----------------|-------|---------|----|------|------------------------------------|------------------------------|
|                 |            |       | 0              | 6     | 12      | 18 |      |                                    |                              |
| 8               |            |       |                |       |         |    |      | 5" BLACKTOP                        |                              |
| 29              |            |       |                |       |         |    |      |                                    |                              |
| 10              |            |       |                |       |         |    |      |                                    |                              |
| 9               |            |       |                |       |         |    |      |                                    |                              |
| 14              |            |       |                |       |         |    |      |                                    |                              |
| 5               | 5          | S-1   | 5.0'           | 6.5'  | 10      | 17 | 112  | 7"                                 | CINDER FILL                  |
|                 | 459        |       |                |       |         |    |      | TIMBER                             | 6.0'                         |
|                 | 8          |       |                |       |         |    |      |                                    | 7.0'                         |
|                 | 4          |       |                |       |         |    |      |                                    |                              |
| 10              | 2          |       |                |       |         |    |      |                                    |                              |
|                 | 3          | S-2   | 10.0'          | 11.5' | 13      | 2  | 2    | 4"                                 | Black Organic SILT.          |
|                 | 4          |       |                |       |         |    |      |                                    |                              |
|                 | 6          |       |                |       |         |    |      |                                    |                              |
|                 | 28         |       |                |       |         |    |      |                                    |                              |
| 15              | 37         |       |                |       |         |    |      |                                    |                              |
|                 | 1          | S-3   | 15.0'          | 16.5' | 7       | 1  | 0    | 4"                                 | SAME little WOOD - CONCRETE. |
|                 | 5          |       |                |       |         |    |      |                                    |                              |
|                 | 3          |       |                |       |         |    |      |                                    |                              |
|                 | 3          |       |                |       |         |    |      |                                    |                              |
| 20              | 3          |       |                |       |         |    |      |                                    |                              |
|                 | 2          | S-4   | 20.0'          | 21.5' | 0       | 0  | 0    | 14"                                | SAME WOOD - COAL             |
|                 | 4          |       |                |       |         |    |      |                                    |                              |
|                 | 4          |       |                |       |         |    |      |                                    |                              |
|                 | 3          |       |                |       |         |    |      |                                    |                              |
| 25              | 4          |       |                |       |         |    |      |                                    |                              |
|                 | 5          | S-5   | 25.0'          | 26.5' | PRESSED |    |      | 8"                                 | SAME WOOD - GLASS            |
|                 | 6          |       |                |       | BY HAND |    |      |                                    |                              |
|                 | 3          |       |                |       |         |    |      |                                    |                              |
|                 | 4          |       |                |       |         |    |      |                                    |                              |
| 30              | 3          |       |                |       |         |    |      |                                    |                              |
|                 | 6          | S-6   | 30.0'          | 31.5' | PRESSED |    |      | 2"                                 | Black Organic SILT.          |
|                 | 6          |       |                |       | BY HAND |    |      |                                    |                              |
|                 | 5          | S-7   | 31.5'          | 33.0' | PRESSED |    |      | 7"                                 | SAME                         |
|                 | 6          |       |                |       | BY HAND |    |      |                                    |                              |
| 35              | 5          |       |                |       |         |    |      |                                    |                              |
|                 | 6          | S-8   | 35.0'          | 36.5' | PRESSED |    |      | 18"                                | SAME                         |
|                 | 7          |       |                |       | BY HAND |    |      |                                    |                              |
|                 | 7          |       |                |       |         |    |      |                                    |                              |
|                 | 8          |       |                |       |         |    |      |                                    |                              |
| 40              | 6          |       |                |       |         |    |      |                                    |                              |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

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New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 15**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **7.8'**BORINGS MADE BY: **Augustine** DATE STARTED: **3/30/78**Elevation G.W.T.  
0 Hr. **6.8' Filled in & Dry** Date: **4/5/78**  
24 Hr. **SAME** Date: **4/6/78**INSPECTOR: **Henry** DATE COMPLETED: **4/5/78**

ft. P.P. Installed Date:

|    | CASING<br>BLOWS | SAMPLE NO. DEPTH |       | Blows on Spoon |   |    |    | REC. | Sample ID<br>and<br>Profile Change |
|----|-----------------|------------------|-------|----------------|---|----|----|------|------------------------------------|
|    |                 |                  |       | 0              | 6 | 12 | 18 |      |                                    |
|    | 8               | S-9              | 40.0' | 41.5'          | 1 | 1  | 1  | 13"  | SAME                               |
|    | 8               |                  |       |                |   |    |    |      |                                    |
|    | 7               |                  |       |                |   |    |    |      |                                    |
|    | 9               |                  |       |                |   |    |    |      |                                    |
| 45 | 7               |                  |       |                |   |    |    |      |                                    |
|    | 6               | S-10             | 45.0' | 46.5'          | 1 | 1  | 1  | 17"  | SAME                               |
|    | 13              |                  |       |                |   |    |    |      |                                    |
|    | 13              |                  |       |                |   |    |    |      |                                    |
| 50 | 15              |                  |       |                |   |    |    |      |                                    |
| XX | 14              |                  |       |                |   |    |    |      |                                    |
|    | 18              | S-11             | 50.0' | 51.5'          | 1 | 1  | 2  | 18"  | SAME                               |
|    | 22              |                  |       |                |   |    |    |      |                                    |
|    | 28              |                  |       |                |   |    |    |      |                                    |
| 55 | 27              |                  |       |                |   |    |    |      |                                    |
| XX | 24              |                  |       |                |   |    |    |      |                                    |
|    | 29              | S-12             | 55.0' | 56.5'          | 1 | 1  | 2  | 18"  | SAME with shells.                  |
|    | 36              |                  |       |                |   |    |    |      |                                    |
|    | 29              |                  |       |                |   |    |    |      |                                    |
| 60 | 27              |                  |       |                |   |    |    |      |                                    |
| XX | 25              |                  |       |                |   |    |    |      |                                    |
|    | 29              | S-13             | 60.0' | 61.5'          | 2 | 2  | 2  | 18"  | SAME                               |
|    | 46              |                  |       |                |   |    |    |      |                                    |
|    | 39              |                  |       |                |   |    |    |      |                                    |
| 65 | 38              |                  |       |                |   |    |    |      |                                    |
| XX | 31              |                  |       |                |   |    |    |      |                                    |
|    | 31              | S-14             | 65.0' | 66.5'          | 2 | 3  | 3  | 18"  | SAME                               |
|    | 33              |                  |       |                |   |    |    |      |                                    |
|    | 39              |                  |       |                |   |    |    |      |                                    |
| 70 | 31              |                  |       |                |   |    |    |      |                                    |
| XX | 32              |                  |       |                |   |    |    |      |                                    |
|    | 50              | S-15             | 70.0' | 71.5'          | 2 | 3  | 3  | 18"  | SAME                               |
|    | 37              |                  |       |                |   |    |    |      |                                    |
|    | 39              |                  |       |                |   |    |    |      |                                    |
| 75 | 35              |                  |       |                |   |    |    |      |                                    |
| XX | 36              |                  |       |                |   |    |    |      |                                    |
|    | 37              | S-16             | 75.0' | 76.5'          | 3 | 3  | 3  | 18"  | SAME                               |
|    | 41              |                  |       |                |   |    |    |      |                                    |
|    | 49              |                  |       |                |   |    |    |      |                                    |
| 80 | 53              |                  |       |                |   |    |    |      |                                    |
| XX | 56              |                  |       |                |   |    |    |      |                                    |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

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New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

**Inferred Change in Strata** -----

**Inferred Change in Strata**

**Inferred Change in Strata**

ROUTE: LOCAL NAME: **Waste Treatment Facility**TEST HOLE NO. **447W - 18**SECTION: **ConRail, Hoboken Yard**

STATION: OFFSET: REFERENCE LINE:

GROUND LINE ELEVATION: **14.1'**BORINGS MADE BY: **Servillo** DATE STARTED: **5/10/78**

Elevation G.W.T.

0 Hr. **8.1'**Date: **5/15/78**INSPECTOR: **Henry** DATE COMPLETED: **5/15/78**24 Hr. **SAME**Date: **5/16/78**

\_\_\_\_\_ ft. P.P. Installed

Date:

|    | CASING<br>BLOWS | SAMPLE NO. DEPTH |       |       | Blows on Spoon |         |          |     | REC. | Sample ID<br>and<br>Profile Change                         |
|----|-----------------|------------------|-------|-------|----------------|---------|----------|-----|------|------------------------------------------------------------|
|    |                 |                  |       |       | 0<br>6         | 6<br>12 | 12<br>18 | 18  |      |                                                            |
|    |                 | S-1              | 0.0'  | 1.5'  |                |         |          |     |      | *Washed ahead 0' to 5' with Washout - No Casing Blows.     |
| 5  | 5               | S-2              | 5.0'  | 6.5'  | 16             | 7       | 7        | 7"  |      | Black MF GRAVEL little, CF Sand, trace Silt.<br>(All Coal) |
|    | 17              |                  |       |       |                |         |          |     |      |                                                            |
|    | 18              |                  |       |       |                |         |          |     |      |                                                            |
|    | 23              |                  |       |       |                |         |          |     |      |                                                            |
| 10 | 11              |                  |       |       |                |         |          |     |      | 9.0'                                                       |
|    | 10              | S-3              | 10.0' | 11.5' | 1              | 1       | 2        | 14" |      | Black Organic SILT.                                        |
|    | 10              |                  |       |       |                |         |          |     |      |                                                            |
|    | 12              |                  |       |       |                |         |          |     |      |                                                            |
|    | 12              |                  |       |       |                |         |          |     |      |                                                            |
| 15 | 14              |                  |       |       |                |         |          |     |      |                                                            |
|    | 15              | S-4              | 15.0' | 16.5' | 1              | 1       | 1        | 13" |      | Black Organic SILT.                                        |
|    | 16              |                  |       |       |                |         |          |     |      |                                                            |
|    | 16              |                  |       |       |                |         |          |     |      |                                                            |
|    | 16              |                  |       |       |                |         |          |     |      |                                                            |
| 20 | 20              |                  |       |       |                |         |          |     |      |                                                            |
|    | 15              | S-5              | 20.0' | 21.5' | 1              | 1       | 1        | 15" |      | SAME                                                       |
|    | 17              |                  |       |       |                |         |          |     |      |                                                            |
|    | 19              |                  |       |       |                |         |          |     |      |                                                            |
|    | 20              |                  |       |       |                |         |          |     |      |                                                            |
| 25 | 20              |                  |       |       |                |         |          |     |      |                                                            |
|    | 13              | S-6              | 25.0' | 26.5' | 1              | 1       | 1        | 14" |      | SAME                                                       |
|    | 14              |                  |       |       |                |         |          |     |      |                                                            |
|    | 17              |                  |       |       |                |         |          |     |      |                                                            |
|    | 20              |                  |       |       |                |         |          |     |      |                                                            |
| 30 | 20              |                  |       |       |                |         |          |     |      |                                                            |
|    | 23              | S-7              | 30.0' | 31.5' | 2              | 2       | 2        | 16" |      | SAME                                                       |
|    | 25              |                  |       |       |                |         |          |     |      |                                                            |
|    | 25              |                  |       |       |                |         |          |     |      |                                                            |
|    | 27              |                  |       |       |                |         |          |     |      |                                                            |
| 35 | 32              |                  |       |       |                |         |          |     |      |                                                            |
|    | 44              | S-8              | 35.0' | 36.5' | 3              | 4       | 9        | 18" |      | Brown PEAT                                                 |
|    | 31              |                  |       |       |                |         |          |     |      | 36.5'                                                      |
|    | 35              |                  |       |       |                |         |          |     |      |                                                            |
|    | 38              |                  |       |       |                |         |          |     |      |                                                            |
| 40 | 42              |                  |       |       |                |         |          |     |      |                                                            |

Nominal I.D. of Drive Pipe 2½" **XX**

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

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Soils Bureau

Core Dia. \_\_\_\_\_

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Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

**Inferred Change in Strata**

**Inferred Change in Strata**

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 20**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **9.9'**BORINGS MADE BY: **Bronston** DATE STARTED: **4/3/78**

Elevation G.W.T.

0 Hr. **7.4' Caved in & Dry** Date: **4/6/78**INSPECTOR: **Henry** DATE COMPLETED: **4/6/78**24 Hr. **SAME** Date: **4/7/78**

ft. P.P. Installed

Date:

|    | CASING<br>BLOWS | SAMPLE NO. DEPTH |       | Blows on Spoon |    |    |    | REC. | Sample ID<br>and<br>Profile Change                               |       |
|----|-----------------|------------------|-------|----------------|----|----|----|------|------------------------------------------------------------------|-------|
|    |                 |                  |       | 0              | 6  | 12 | 18 |      |                                                                  |       |
|    | 10              | S-1              | 0.0'  | 1.5'           | 3  | 21 | 86 | 10"  | FILL - Black CF Sand, some Silt, some CF Gravel (Cinders - Oil). |       |
|    | 85              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 40              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 40              |                  |       |                |    |    |    |      |                                                                  |       |
| 5  | 31              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 15              | S-2              | 5.0'  | 6.5'           | 2  | 3  | 5  | 0"   |                                                                  |       |
|    | 14              | S-2A             | 6.5'  | 8.0'           | 3  | 3  | 2  | 7"   | Black Organic SILT, trace (+) Fibers.                            |       |
|    | 5               |                  |       |                |    |    |    |      |                                                                  |       |
|    | 6               |                  |       |                |    |    |    |      |                                                                  |       |
| 10 | 5               |                  |       |                |    |    |    |      |                                                                  |       |
|    | 18              | S-3              | 10.0' | 11.5'          | 3  | 3  | 2  | 3"   | Black Organic SILT trace, Cinders, Wood.                         |       |
|    | 23              |                  |       |                |    |    |    |      | Approx. Bottom of FILL                                           | 12.0' |
|    | 9               |                  |       |                |    |    |    |      |                                                                  |       |
|    | 9               |                  |       |                |    |    |    |      |                                                                  |       |
| 15 | 8               |                  |       |                |    |    |    |      |                                                                  |       |
|    | 14              | S-4              | 15.0' | 16.5'          | 1  | 1  | 1  | 18"  | Black Organic SILT.                                              |       |
|    | 20              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 11              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 11              |                  |       |                |    |    |    |      |                                                                  |       |
| 20 | 11              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 21              | S-5              | 20.0' | 21.5'          | 2  | 2  | 2  | 18"  | SAME                                                             |       |
|    | 41              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 14              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 13              |                  |       |                |    |    |    |      |                                                                  |       |
| 25 | 13              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 24              | S-6              | 25.0' | 26.5'          | 1  | 1  | 1  | 18"  | SAME trace Fibers.                                               |       |
|    | 38              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 18              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 16              |                  |       |                |    |    |    |      |                                                                  |       |
| 30 | 22              |                  |       |                |    |    |    |      |                                                                  | 30.0' |
|    | 80              | S-7              | 30.0' | 31.5'          | 9  | 12 | 14 | 18"  | Grey CF SAND, little Silt.                                       |       |
|    | 80              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 52              |                  |       |                |    |    |    |      |                                                                  |       |
|    | 63              |                  |       |                |    |    |    |      |                                                                  |       |
| 35 | 53              |                  |       |                |    |    |    |      |                                                                  |       |
|    |                 | S-8              | 35.0' | 36.5'          | 25 | 15 | 31 | 12"  | Grey MF SAND, trace (+) Silt.                                    | 36.5' |
|    |                 |                  |       |                |    |    |    |      |                                                                  |       |
|    |                 |                  |       |                |    |    |    |      |                                                                  |       |
| 40 |                 |                  |       |                |    |    |    |      | BOTTOM OF HOLE                                                   |       |

Nominal I.D. of Drive Pipe 2½" **XX**

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: **Waste Treatment Facility**TEST HOLE NO. **447W - 21**SECTION: **Con-Rail, Hoboken Yard**

STATION: OFFSET: REFERENCE LINE:

GROUND LINE ELEVATION: **6.8'**BORINGS MADE BY: **Bowers** DATE STARTED: **4/6/78**Elevation G.W.T. **2.8'** Date: **4/9/78**INSPECTOR: **Henry & Lounsberry** DATE COMPLETED: **4/10/78**0 Hr. **SAME** Date: **4/10/78**24 Hr. **SAME** ft. P.P. Installed

Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |    |    | REC. | Sample ID<br>and<br>Profile Change                                      |       |
|-----------------|------------|-------|----------------|----|----|----|------|-------------------------------------------------------------------------|-------|
|                 |            |       | 0              | 6  | 12 | 18 |      |                                                                         |       |
|                 |            |       |                |    |    |    |      | BLACKTOP                                                                |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
| 5               |            |       |                |    |    |    |      |                                                                         |       |
|                 | S-1        | 5.0'  | 6.5'           | 2  | 2  | 2  | 6"   | Black CF Sand and Silt, little CF Gravel<br>(Mostly Cinders).           |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
| 10              |            |       |                |    |    |    |      |                                                                         | 10.0' |
|                 | S-2        | 10.0' | 11.5'          | 2  | 1  | 2  | 13"  | Black Organic SILT little, Fibers.                                      |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
| 15              |            |       |                |    |    |    |      |                                                                         |       |
|                 | S-3        | 15.0' | 16.5'          | 2  | 2  | 2  | 11"  | SAME                                                                    |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
| 20              |            |       |                |    |    |    |      |                                                                         |       |
|                 | S-4        | 20.0' | 21.5'          | 1  | 3  | 2  | 12"  | SAME                                                                    | 21.0' |
|                 |            |       |                |    |    |    |      | Black CF SAND, and (-) Silt.                                            | 23.0' |
|                 |            |       |                |    |    |    |      |                                                                         |       |
| 25              |            |       |                |    |    |    |      |                                                                         |       |
|                 | S-5        | 25.0' | 26.5'          | 9  | 9  | 9  | 8"   | Light Grey SILT and CLAY and, CF Sand, trace F<br>Gravel. Bits of Wood. | 28.0' |
|                 |            |       |                |    |    |    |      |                                                                         |       |
| 30              |            |       |                |    |    |    |      |                                                                         |       |
|                 | S-6        | 30.0' | 31.5'          | 6  | 8  | 12 | 17"  | Brown F SAND, some Silt.                                                | 33.0' |
|                 |            |       |                |    |    |    |      |                                                                         |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
| 35              |            |       |                |    |    |    |      |                                                                         |       |
|                 | S-7        | 35.0' | 36.5'          | 85 | 28 | 27 | 18"  | Brown SILT and, F Sand, trace F Gravel.                                 | 36.0' |
|                 |            |       |                |    |    |    |      |                                                                         |       |
|                 |            |       |                |    |    |    |      |                                                                         |       |
| 40              |            |       |                |    |    |    |      |                                                                         |       |

Nominal I.D. of Drive Pipe **3 3/8" XX**Nominal I.D. of Split Barrel Sampler **1 1/2"**Weight of hammer on Drive Pipe **300 lbs.**Weight of hammer on Split Barrel Sampler **140 lbs.**Drop of hammer on Drive Pipe **24"**Drop of hammer on Split Barrel Sampler **30"**

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New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



**Inferred Change in Strata** \_\_\_\_\_

**Inferred Change in Strata**

ROUTE: LOCAL NAME: **Waste Treatment Facility**TEST HOLE NO. **447W - 23A**SECTION: **ConRail, Hoboken Yard**

STATION: OFFSET: REFERENCE LINE:

GROUND LINE ELEVATION: **5.1'**BORINGS MADE BY: **Bronston** DATE STARTED: **5/10/78**Elevation G.W.T.  
0 Hr. **1.3'** Caved in & Dry Date: **5/16/78**INSPECTOR: **Henry** DATE COMPLETED: **5/12/78**24 Hr. **SAME** Date: **5/17/78**

\_\_\_\_\_ ft. P.P. Installed Dates:

|    | CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |    |    |     | REC. | Sample ID<br>and<br>Profile Change |                                       |
|----|-----------------|------------|-------|----------------|----|----|----|-----|------|------------------------------------|---------------------------------------|
|    |                 |            |       | 0              | 6  | 12 | 12 | 18  |      |                                    |                                       |
|    | 24              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 42              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 45              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 33              |            |       |                |    |    |    |     |      |                                    |                                       |
| 5  | 29              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 21              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 11              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 18              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 15              |            |       |                |    |    |    |     |      |                                    |                                       |
| 10 | 21              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 25              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 17              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 48              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 46              |            |       |                |    |    |    |     |      |                                    |                                       |
| 15 | 44              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 59              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 63              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 53              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 49              |            |       |                |    |    |    |     |      |                                    |                                       |
| 20 | 55              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 52              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 46              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 50              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 46              |            |       |                |    |    |    |     |      |                                    |                                       |
| 25 | 57              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 39              | U-1        | 25.0' | 27.0'          | P  | R  | E  | S   | S    | 5"                                 | Black Organic SILT - Sample discarded |
|    | 37              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 34              | U-2        | 27.0' | 29.0'          | P  | R  | E  | S   | S    | 19"                                | SAME                                  |
|    | 35              |            |       |                |    |    |    |     |      |                                    |                                       |
| 30 | 2               |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 3               | U-3        | 29.0' | 31.0'          | P  | R  | E  | S   | S    | 28"                                | SAME                                  |
|    | 4               | S-1        | 31.0' | 32.5'          | 1  | 1  | 1  | 1   | 18"  | SAME                               |                                       |
|    | 11              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 12              |            |       |                |    |    |    |     |      |                                    |                                       |
| 35 | 14              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 16              | S-2        | 35.0' | 36.5'          | 20 | 25 | 25 | 18" |      | SAME with 1 piece C Red SHALE.     |                                       |
|    | 31              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 35              |            |       |                |    |    |    |     |      |                                    |                                       |
|    | 33              |            |       |                |    |    |    |     |      |                                    |                                       |
| 40 | 40              |            |       |                |    |    |    |     |      |                                    |                                       |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | 4" |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

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New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

**Inferred Change in Strata** \_\_\_\_\_

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 24**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **7.8'**BORINGS MADE BY: **Bronston** DATE STARTED: **4/12/78**Elevation G.W.T.  
0 Hr. **4.3' Caved in & Dry** Date: **4/14/78**INSPECTOR: **Henry** DATE COMPLETED: **4/13/78**24 Hr. **SAME** Date: **4/17/78**

ft. P.P. Installed Date:

|    | CASING<br>BLOWS | SAMPLE NO. DEPTH |       |       | Blows on Spoon |    |    |     | REC. | Sample ID<br>and<br>Profile Change                              |              |
|----|-----------------|------------------|-------|-------|----------------|----|----|-----|------|-----------------------------------------------------------------|--------------|
|    |                 |                  |       |       | 0              | 6  | 12 | 18  |      |                                                                 |              |
|    | 3               |                  |       |       |                |    |    |     |      | <b>CONCRETE</b>                                                 | <b>1.0'</b>  |
|    | 29              | S-1              | 1.0'  | 2.5'  | 28             | 29 | 16 | 5"  |      | Dark Grey CF Sand, little (+) Silt, and CF Gravel.              |              |
|    | 35              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 94              |                  |       |       |                |    |    |     |      |                                                                 |              |
| 5  | 39              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 9               | S-2              | 5.0'  | 6.5'  | 4              | 1  | 2  | 7"  |      | Grey CF Sand, some Silt, some CF Gravel.                        |              |
|    | 8               |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 120             |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 226             |                  |       |       |                |    |    |     |      |                                                                 |              |
| 10 | 56              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 144             | S-3              | 10.0' | 11.5' | 97             | 71 | 32 | 14" |      | Red Brown, Brown, Black CF Sand, some (+) Silt, some CF Gravel. |              |
|    | 25              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 26              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 20              |                  |       |       |                |    |    |     |      |                                                                 |              |
| 15 | 23              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 27              | S-4              | 15.0' | 16.5' | 20             | 6  | 5  | 18" |      | Grey CF Sand, some Silt, some MF Gravel (Cluders)               | <b>17.0'</b> |
|    | 10              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 11              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 14              |                  |       |       |                |    |    |     |      |                                                                 |              |
| 20 | 13              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 30              | S-5              | 20.0' | 21.5' | 5              | 8  | 9  | 18" |      | Dark Grey Brown Organic SILT - Fibers.                          |              |
|    | 21              |                  |       |       |                |    |    |     |      |                                                                 | <b>21.3'</b> |
|    | 21              |                  |       |       |                |    |    |     |      | Grey CF SAND, little Silt.                                      |              |
|    | 20              |                  |       |       |                |    |    |     |      |                                                                 |              |
| 25 | 21              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 27              | S-6              | 25.0' | 26.5' | 11             | 10 | 9  | 18" |      | SAME                                                            |              |
|    | 22              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 16              |                  |       |       |                |    |    |     |      |                                                                 |              |
|    | 27              |                  |       |       |                |    |    |     |      |                                                                 |              |
| 30 | 43              |                  |       |       |                |    |    |     |      |                                                                 | <b>29.5'</b> |
|    |                 | S-7              | 30.0' | 31.5' | 19             | 26 | 33 | 18" |      | Black PEAT and Organic SILT.                                    | <b>30.5'</b> |
|    |                 |                  |       |       |                |    |    |     |      | Grey MF SAND, little Silt.                                      | <b>31.5'</b> |
|    |                 |                  |       |       |                |    |    |     |      |                                                                 |              |
|    |                 |                  |       |       |                |    |    |     |      |                                                                 |              |
|    |                 |                  |       |       |                |    |    |     |      |                                                                 |              |
| 35 |                 |                  |       |       |                |    |    |     |      | <b>BOTTOM OF HOLE</b>                                           |              |
|    |                 |                  |       |       |                |    |    |     |      |                                                                 |              |
|    |                 |                  |       |       |                |    |    |     |      |                                                                 |              |
|    |                 |                  |       |       |                |    |    |     |      |                                                                 |              |
| 40 |                 |                  |       |       |                |    |    |     |      |                                                                 |              |

|                                          |          |           |
|------------------------------------------|----------|-----------|
| Nominal I.D. of Drive Pipe               | 2½"      | <b>XX</b> |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |           |
| Weight of hammer on Drive Pipe           | 300 lbs. |           |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |           |
| Drop of hammer on Drive Pipe             | 24"      |           |
| Drop of hammer on Split Barrel Sampler   | 30"      |           |

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Soils Bureau

Core Dia. \_\_\_\_\_

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Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

**Inferred Change in Strata** 

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 26**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **8.5'**BORINGS MADE BY: **Bronston** DATE STARTED: **3/29/78**Elevation G.W.T.  
0 Hr. **4.5'** Date: **3/30/78**  
24 Hr. **4.1'** Date: **3/31/78**INSPECTOR: **Lounsberry** DATE COMPLETED: **3/30/78**

ft. P.P. Installed Date:

|    | CASING BLOWS | SAMPLE NO. DEPTH |       |       | Blows on Spoon |    |    |     | REC.                                                                    | Sample ID and Profile Change                                  |              |
|----|--------------|------------------|-------|-------|----------------|----|----|-----|-------------------------------------------------------------------------|---------------------------------------------------------------|--------------|
|    |              |                  |       |       | 0              | 6  | 12 | 18  |                                                                         |                                                               |              |
|    | 37           | S-1              | 0.0'  | 1.5'  | 10             | 19 | 14 | 13" |                                                                         | <b>FILL</b><br><b>Black MF GRAVEL some, CF Sand, Cinders.</b> |              |
|    | 40           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 42           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 46           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 43           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
| 5  | 16           | S-2              | 5.0'  | 6.5'  | 11             | 5  | 4  | 3"  | <b>SAME</b>                                                             |                                                               |              |
|    | 6            |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 12           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 24           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
| 10 | 21           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 26           | S-3              | 10.0' | 11.5' | 9              | 7  | 11 | 15" | <b>SAME</b>                                                             |                                                               |              |
|    | 20           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 28           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 30           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
| 15 | 12           |                  |       |       |                |    |    |     |                                                                         | <b>Approx. Bottom of FILL</b>                                 | <b>15.0'</b> |
|    | 8            | S-4              | 15.0' | 16.5' | 6              | 4  | 2  | 7"  | <b>Dark Grey Organic SILT some, F Sand.</b>                             |                                                               |              |
|    | 15           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 17           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 20           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
| 20 | 13           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 10           | S-5              | 20.0' | 21.5' | 1              | 0  | 1  | 14" | <b>SAME</b>                                                             |                                                               |              |
|    | 15           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 18           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 19           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
| 25 | 12           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 22           | S-6              | 25.0' | 26.5' | 3              | 3  | 3  | 7"  | <b>SAME</b>                                                             |                                                               |              |
|    | 24           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 33           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 199          |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
| 30 | 30           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 22           | S-7              | 30.0' | 31.5' | 3              | 6  | 6  | 8"  | <b>SAME</b>                                                             |                                                               |              |
|    | 41           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 77           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 70           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
| 35 | 30           |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 61           | S-8              | 35.0' | 36.5' | 17             | 34 | 31 | 18" | <b>Top 6" - SAME</b>                                                    |                                                               |              |
|    | 84           |                  |       |       |                |    |    |     | <b>Bottom 12" - Red-Brown CF SAND, little (+) Silt, trace F Gravel.</b> |                                                               | <b>35.5'</b> |
|    | 122          |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
|    | 165          |                  |       |       |                |    |    |     |                                                                         |                                                               |              |
| 40 | 282          |                  |       |       |                |    |    |     |                                                                         |                                                               |              |

|                                          |          |           |
|------------------------------------------|----------|-----------|
| Nominal I.D. of Drive Pipe               | 2½"      | <b>XX</b> |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |           |
| Weight of hammer on Drive Pipe           | 300 lbs. |           |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |           |
| Drop of hammer on Drive Pipe             | 24"      |           |
| Drop of hammer on Split Barrel Sampler   | 30"      |           |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

**Inferred Change in Strata**

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 27**SECTION: **ConRail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **6.3'**BORINGS MADE BY: **Bronston** DATE STARTED: **4/24/78**

Elevation G.W.T.

0 Hr.

**-3.0'**Date: **4/24/78**INSPECTOR: **Henry** DATE COMPLETED: **4/24/78**

24 Hr.

**SAME**Date: **4/25/78****20** ft. P.P. Installed Date: **4/24/78**

|    | CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |    |    | REC. | Sample ID<br>and<br>Profile Change                               |       |
|----|-----------------|------------|-------|----------------|----|----|----|------|------------------------------------------------------------------|-------|
|    |                 |            |       | 0              | 6  | 12 | 18 |      |                                                                  |       |
|    | 13              |            |       |                |    |    |    |      | <b>Belgian Block</b>                                             |       |
|    | 55              | S-1        | 0.5'  | 2.0'           | 72 | 22 | 17 | 9"   | Brown CF SAND, little (-) Silt, little (+) MF Gravel.            | 0.5'  |
|    | 31              |            |       |                |    |    |    |      |                                                                  |       |
|    | 32              |            |       |                |    |    |    |      |                                                                  |       |
| 5  | 22              |            |       |                |    |    |    |      |                                                                  |       |
|    | 17              | S-2        | 5.0'  | 6.5'           | 4  | 9  | 27 | 18"  | Dark Grey CF SAND, some (-) Silt, little CF Gravel.              |       |
|    | 33              |            |       |                |    |    |    |      |                                                                  |       |
|    | 14              |            |       |                |    |    |    |      |                                                                  |       |
|    | 3               |            |       |                |    |    |    |      |                                                                  |       |
| 10 | 6               |            |       |                |    |    |    |      |                                                                  |       |
|    | 12              | S-3        | 10.0' | 11.5'          | 5  | 6  | 4  | 2"   | Brown-Grey CF Sand, little (+) Silt, some (+) CF Gravel.         |       |
|    | 28              |            |       |                |    |    |    |      |                                                                  |       |
|    | 18              |            |       |                |    |    |    |      |                                                                  |       |
|    | 11              |            |       |                |    |    |    |      |                                                                  |       |
| 15 | 8               |            |       |                |    |    |    |      |                                                                  |       |
|    | 10              | S-4        | 15.0' | 16.5'          | 6  | 5  | 3  | 6"   | Black CF Sand, some Silt, some CF Gravel. (Brick Cinder)         |       |
|    | 25              |            |       |                |    |    |    |      |                                                                  |       |
|    | 10              |            |       |                |    |    |    |      |                                                                  |       |
| 20 | 9               |            |       |                |    |    |    |      |                                                                  |       |
|    | 9               | S-5        | 20.0' | 21.5'          | 3  | 4  | 2  | 6"   | Black Organic SILT little, CF Sand. (Cinder - Coal)              |       |
|    | 18              |            |       |                |    |    |    |      |                                                                  |       |
|    | 22              |            |       |                |    |    |    |      |                                                                  |       |
|    | 16              |            |       |                |    |    |    |      | <b>FILL</b>                                                      |       |
| 25 | 13              |            |       |                |    |    |    |      |                                                                  | 25.0' |
|    | 16              | S-6        | 25.0' | 26.5'          | 2  | 2  | 2  | 18"  | Slight P.I. Black Organic SILT.                                  |       |
|    | 20              |            |       |                |    |    |    |      |                                                                  |       |
|    | 21              |            |       |                |    |    |    |      |                                                                  |       |
|    | 15              |            |       |                |    |    |    |      |                                                                  |       |
| 30 | 15              |            |       |                |    |    |    |      |                                                                  |       |
|    | 20              | S-7        | 30.0' | 31.5'          | 1  | 1  | 1  | 18"  | Black Organic SILT.                                              |       |
|    | 16              |            |       |                |    |    |    |      |                                                                  | 32.0' |
|    |                 |            |       |                |    |    |    |      | <b>BOTTOM OF HOLE</b>                                            |       |
| 35 |                 |            |       |                |    |    |    |      | NOTE: All water tables read prior to 5/8/78 are from cased hole. |       |
|    |                 |            |       |                |    |    |    |      | <u>Date</u> <u>G.W.T.</u> <u>Elevation</u>                       |       |
|    |                 |            |       |                |    |    |    |      | 4/26/78 -3.0'                                                    |       |
|    |                 |            |       |                |    |    |    |      | 4/27/78 -2.9'                                                    |       |
|    |                 |            |       |                |    |    |    |      | 4/28/78 -2.9'                                                    |       |
| 40 |                 |            |       |                |    |    |    |      | 5/1/78 -2.3'                                                     |       |
|    |                 |            |       |                |    |    |    |      | 5/8/78 2.5'                                                      |       |

Nominal I.D. of Drive Pipe 2½" **XX**

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

|                              |                                  |               |
|------------------------------|----------------------------------|---------------|
| 0 Hr.                        | Elevation G.W.T.<br><b>-3.0'</b> | Date: 4/24/78 |
| 24 Hr.                       | <b>SAME</b>                      | Date: 4/25/78 |
| <b>20</b> ft. P.P. Installed |                                  | Date: 4/24/78 |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | 4" |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

**Inferred Change in Strata**

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 28**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **6.1'**BORINGS MADE BY: **Bronston** DATE STARTED: **4/18/78**

Elevation G.W.T.

0 Hr.

**-0.9'**Date: **4/21/78**INSPECTOR: **Henry** DATE COMPLETED: **4/21/78**

24 Hr.

**2.8'**Date: **4/24/78**

ft. P.P. Installed

Date:

|    | CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |    |    |    |    | REC. | Sample ID<br>and<br>Profile Change | Belgian Block |      |
|----|-----------------|------------|-------|----------------|----|----|----|----|------|------------------------------------|---------------|------|
|    |                 |            |       | 0              | 6  | 12 | 12 | 18 |      |                                    |               |      |
|    | 2               | S-1        | 0.5'  | 2.0'           | 47 | 11 | 5  |    | 4"   |                                    |               | 0.5' |
|    | 4               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 11              |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 11              |            |       |                |    |    |    |    |      |                                    |               |      |
| 5  | 5               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 3               | S-2        | 5.0'  | 6.5'           | 2  | 1  | 1  |    | 6"   |                                    |               |      |
|    | 292             |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 172             |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 3               |            |       |                |    |    |    |    |      |                                    |               |      |
| 10 | 3               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 1               | S-3        | 10.0' | 11.5'          | 1  | 0  | 0  |    | 6"   |                                    |               |      |
|    | 2               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 3               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 1               |            |       |                |    |    |    |    |      |                                    |               |      |
| 15 | 1               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 2               | S-4        | 15.0' | 16.5'          | 1  | 0  | 0  |    | 2"   |                                    |               |      |
|    | 2               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 3               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 1               |            |       |                |    |    |    |    |      |                                    |               |      |
| 20 | 1               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 2               | S-5        | 20.0' | 21.5'          | 1  | 0  | 0  |    | 18"  |                                    |               |      |
|    | 2               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 6               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 1               |            |       |                |    |    |    |    |      |                                    |               |      |
| 25 | 1               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 2               | S-6        | 25.0' | 26.5'          | 1  | 0  | 0  |    | 7"   |                                    |               |      |
|    | 2               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 7               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 3               |            |       |                |    |    |    |    |      |                                    |               |      |
| 30 | 4               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 4               | S-7        | 30.0' | 31.5'          | 1  | 2  | 2  |    | 18"  |                                    |               |      |
|    | 4               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 9               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 7               |            |       |                |    |    |    |    |      |                                    |               |      |
| 35 | 8               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 10              | S-8        | 35.0' | 36.5'          | 5  | 3  | 2  |    | 18"  |                                    |               |      |
|    | 14              |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 8               |            |       |                |    |    |    |    |      |                                    |               |      |
|    | 7               |            |       |                |    |    |    |    |      |                                    |               |      |
| 40 | 9               |            |       |                |    |    |    |    |      |                                    |               |      |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | XX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 28**SECTION: **Con-Rail, Hoboken Yard**STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION: **6.1'**BORINGS MADE BY: **Bronston** DATE STARTED: **4/18/78**

Elevation G.W.T.

0 Hr. **-0.9'** Date: **4/21/78**INSPECTOR: **Henry** DATE COMPLETED: **4/21/78**24 Hr. **2.8'** Date: **4/24/78**

\_\_\_\_\_ ft. P.P. Installed Date: \_\_\_\_\_

|    | CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |   |    |    | REC. | Sample ID<br>and<br>Profile Change  |  |
|----|-----------------|------------|-------|----------------|---|----|----|------|-------------------------------------|--|
|    |                 |            |       | 0              | 6 | 12 | 18 |      |                                     |  |
|    | 21              | S-9        | 40.0' | 41.5'          | 1 | 1  | 0  | 9"   | SAME                                |  |
|    | 18              |            |       |                |   |    |    |      |                                     |  |
|    | 31              |            |       |                |   |    |    |      |                                     |  |
|    | 17              |            |       |                |   |    |    |      |                                     |  |
| 45 | 13              |            |       |                |   |    |    |      |                                     |  |
|    | 17              | S-10       | 45.0' | 46.5'          | 1 | 0  | 0  | 18"  | Dark Grey Organic SILT (Slight PI). |  |
|    | 17              |            |       |                |   |    |    |      |                                     |  |
|    | 27              |            |       |                |   |    |    |      |                                     |  |
| 50 | 15              |            |       |                |   |    |    |      |                                     |  |
| XX | 14              |            |       |                |   |    |    |      |                                     |  |
|    | 16              | S-11       | 50.0' | 51.5'          | 1 | 1  | 0  | 18"  | SAME (SHELLS)                       |  |
|    | 16              |            |       |                |   |    |    |      |                                     |  |
|    | 25              |            |       |                |   |    |    |      |                                     |  |
| 55 | 13              |            |       |                |   |    |    |      |                                     |  |
| XX | 12              |            |       |                |   |    |    |      |                                     |  |
|    | 19              | S-12       | 55.0' | 56.5'          | 1 | 0  | 0  | 18"  | SAME                                |  |
|    | 12              |            |       |                |   |    |    |      |                                     |  |
|    | 24              |            |       |                |   |    |    |      |                                     |  |
| 60 | 16              |            |       |                |   |    |    |      |                                     |  |
| XX | 14              |            |       |                |   |    |    |      |                                     |  |
|    | 13              | S-13       | 60.0' | 61.5'          | 1 | 0  | 1  | 18"  | SAME                                |  |
|    | 18              |            |       |                |   |    |    |      |                                     |  |
|    | 22              |            |       |                |   |    |    |      |                                     |  |
| 65 | 21              |            |       |                |   |    |    |      |                                     |  |
| XX | 18              |            |       |                |   |    |    |      |                                     |  |
|    | 18              | S-14       | 65.0' | 66.5'          | 1 | 1  | 1  | 18"  | SAME                                |  |
|    | 22              |            |       |                |   |    |    |      |                                     |  |
|    | 28              |            |       |                |   |    |    |      |                                     |  |
| 70 | 27              |            |       |                |   |    |    |      |                                     |  |
| XX | 21              |            |       |                |   |    |    |      |                                     |  |
|    | 22              | S-15       | 70.0' | 71.5'          | 2 | 3  | 2  | 18"  | SAME                                |  |
|    | 24              |            |       |                |   |    |    |      |                                     |  |
|    | 27              |            |       |                |   |    |    |      |                                     |  |
| 75 | 29              |            |       |                |   |    |    |      |                                     |  |
| XX | 22              |            |       |                |   |    |    |      |                                     |  |
|    | 49              | S-16       | 75.0' | 76.5'          | 2 | 2  | 3  | 18"  | SAME                                |  |
|    | 47              |            |       |                |   |    |    |      |                                     |  |
|    | 48              |            |       |                |   |    |    |      |                                     |  |
| 80 | 57              |            |       |                |   |    |    |      |                                     |  |
| XX | 45              |            |       |                |   |    |    |      |                                     |  |

|                                          |          |     |
|------------------------------------------|----------|-----|
| Nominal I.D. of Drive Pipe               | 2½"      | XXX |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |     |
| Weight of hammer on Drive Pipe           | 300 lbs. |     |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |     |
| Drop of hammer on Drive Pipe             | 24"      |     |
| Drop of hammer on Split Barrel Sampler   | 30"      |     |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_



ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 29**SECTION: **ConRail, Hoboken Yard**

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: **Servillo** DATE STARTED: **4/27/78**INSPECTOR: **Henry** DATE COMPLETED: **5/8/78**

Elevation G.W.T.  
 0 Hr. **8.0'** Down - Water Date: **5/8/78**  
 24 Hr. **5.8'** Below O.G. Date: **5/9/78**  
 \_\_\_\_\_ ft. P.P. Installed Date:

|    | CASING BLOWS | SAMPLE NO. DEPTH |       |       | Blows on Spoon |    |    |    | REC. | Sample ID and Profile Change                                             |
|----|--------------|------------------|-------|-------|----------------|----|----|----|------|--------------------------------------------------------------------------|
|    |              |                  |       |       | 0              | 6  | 12 | 18 |      |                                                                          |
|    |              | S-1              | 0.0'  | 1.5'  | --             | -- | -- |    | 0"   | *Drilled out cement sidewalk<br>*Washed A-Rod ahead 0' to 6'             |
|    | 11           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 7            |                  |       |       |                |    |    |    |      |                                                                          |
| 5  | 6            |                  |       |       |                |    |    |    |      |                                                                          |
|    | 36           | S-2              | 5.0'  | 6.5'  | --             | -- | -- |    | 0"   |                                                                          |
|    | 20           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 4            |                  |       |       |                |    |    |    |      |                                                                          |
|    | 6            |                  |       |       |                |    |    |    |      |                                                                          |
| 10 | 9            |                  |       |       |                |    |    |    |      |                                                                          |
|    | 9            | S-3              | 10.0' | 11.5' | 4              | 3  | 3  |    | 0"   |                                                                          |
|    | 8            |                  |       |       |                |    |    |    |      |                                                                          |
|    | 6            |                  |       |       |                |    |    |    |      |                                                                          |
|    | 6            |                  |       |       |                |    |    |    |      |                                                                          |
| 15 | 6            |                  |       |       |                |    |    |    |      |                                                                          |
|    | 8            | S-4              | 15.0' | 16.5' | 3              | 4  | 4  |    | 5"   | Black & Brown Organic SILT some, CF Sand, little (-) MF Gravel (Cinders) |
|    | 11           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 20           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 12           |                  |       |       |                |    |    |    |      |                                                                          |
| 20 | 10           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 11           | S-5              | 20.0' | 21.5' | 10             | 9  | 8  |    | 8"   | Black CF Sand, some Silt, some CF Gravel (Cinders Ashes - Brick, Coal)   |
|    | 11           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 12           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 12           |                  |       |       |                |    |    |    |      |                                                                          |
| 25 | 14           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 15           | S-6              | 25.0' | 26.5' | 5              | 2  | 26 |    | 5"   | Dark Grey CF Grey Micaceous Sand, trace Silt, and MF Gravel (Glass)      |
|    | 21           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 15           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 9            |                  |       |       |                |    |    |    |      |                                                                          |
| 30 | 10           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 23           | S-7              | 30.0' | 31.5' | 3              | 6  | 3  |    | 10"  | Dark Grey Brown Organic SILT.                                            |
|    | 25           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 20           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 24           |                  |       |       |                |    |    |    |      |                                                                          |
| 35 | 26           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 39           | S-8              | 35.0' | 36.5' | 18             | 20 | 21 |    | 16"  | Reddish Brown F SAND, little Silt.                                       |
|    | 42           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 48           |                  |       |       |                |    |    |    |      |                                                                          |
|    | 37           |                  |       |       |                |    |    |    |      |                                                                          |
| 40 | 35           |                  |       |       |                |    |    |    |      |                                                                          |
|    |              |                  |       |       |                |    |    |    |      | 40.0'                                                                    |

|                                          |          |     |
|------------------------------------------|----------|-----|
| Nominal I.D. of Drive Pipe               | 2 1/2"   | AKX |
| Nominal I.D. of Split Barrel Sampler     | 1 1/2"   |     |
| Weight of hammer on Drive Pipe           | 300 lbs. |     |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |     |
| Drop of hammer on Drive Pipe             | 24"      |     |
| Drop of hammer on Split Barrel Sampler   | 30"      |     |

## BOTTOM OF HOLE

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

G.W.T. New Jersey Department of Transportation  
 Depth 6.4'  
 Soils Bureau

Core Dia. \_\_\_\_\_ Date 5/11/78

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

SECTION: **ConRail, Hoboken Yard**

BORINGS MADE BY: **Servillo**      DATE STARTED: **5/16/78**

| Elevation G.W.T. |                    |       |
|------------------|--------------------|-------|
| 0 Hr.            |                    | Date: |
| 24 Hr.           |                    | Date: |
| _____            | ft. P.P. installed | Date: |

|                                          |          |    |
|------------------------------------------|----------|----|
| Nominal I.D. of Drive Pipe               | 2½"      | 4" |
| Nominal I.D. of Split Barrel Sampler     | 1½"      |    |
| Weight of hammer on Drive Pipe           | 300 lbs. |    |
| Weight of hammer on Split Barrel Sampler | 140 lbs. |    |
| Drop of hammer on Drive Pipe             | 24"      |    |
| Drop of hammer on Split Barrel Sampler   | 30"      |    |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

**New Jersey Department of Transportation  
Soils Bureau**

Core Dia. \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

### Approximate Change in Strata

**Inferred Change in Strata**

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 31**SECTION: **ConRail, Hoboken Yard**

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: **Servillo** DATE STARTED: **5/17/78**

Elevation G.W.T.

0 Hr.

Date:

INSPECTOR: **Henry** DATE COMPLETED: **5/18/78**

24 Hr.

Date:

\_\_\_\_\_ ft. P.P. Installed

Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |   |    |    | REC. | Sample ID<br>and<br>Profile Change |
|-----------------|------------|-------|----------------|---|----|----|------|------------------------------------|
|                 |            |       | 0              | 6 | 12 | 18 |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
| 5               |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
| 10              |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
| 15              |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
| 20              |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
| 25              |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
| 30              |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
| 35              |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
|                 |            |       |                |   |    |    |      |                                    |
| 40              |            |       |                |   |    |    |      |                                    |

A - Stopped on Wood 29.5' - Distance from Canal 34'

B - Went to 40' no refusal - Distance from Canal 29'

Nominal I.D. of Drive Pipe 2½" 4"

Nominal I.D. of Split Barrel Sampler 1½"

Weight of hammer on Drive Pipe 300 lbs.

Weight of hammer on Split Barrel Sampler 140 lbs.

Drop of hammer on Drive Pipe 24"

Drop of hammer on Split Barrel Sampler 30"

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

Core Dia. \_\_\_\_\_

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after D.M. Burmister unless otherwise noted.

Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 32**SECTION: **ConRail, Hoboken Yard**

STATION: OFFSET: REFERENCE LINE: GROUND LINE ELEVATION:

BORINGS MADE BY: **Servillo** DATE STARTED: **5/19/78**

Elevation G.W.T.

0 Hr.

Date:

INSPECTOR: **Henry** DATE COMPLETED: **5/19/78**

24 Hr.

Date:

\_\_\_\_\_ ft. P.P. Installed

Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |   |    |    | REC. | Sample ID<br>and<br>Profile Change                                                       |
|-----------------|------------|-------|----------------|---|----|----|------|------------------------------------------------------------------------------------------|
|                 |            |       | 0              | 6 | 12 | 18 |      |                                                                                          |
|                 |            |       |                |   |    |    |      | A - Stopped on Wood 16' below O.G.                                                       |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      | B - Wood 9' - 10', but penetrated O.K.<br>Wood 11'-13' moving very slowly, end of probe. |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
| 5               |            |       |                |   |    |    |      | C - Stopped on Wood 7½'                                                                  |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
| 10              |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
| 15              |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
| 20              |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
| 25              |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
| 30              |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
| 35              |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
|                 |            |       |                |   |    |    |      |                                                                                          |
| 40              |            |       |                |   |    |    |      |                                                                                          |

Nominal I.D. of Drive Pipe **XXX** **XX**Nominal I.D. of Split Barrel Sampler **1½"**Weight of hammer on Drive Pipe **300 lbs.**Weight of hammer on Split Barrel Sampler **140 lbs. \***Drop of hammer on Drive Pipe **24"**Drop of hammer on Split Barrel Sampler **30"**

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation  
Soils Bureau

Core Dia. \_\_\_\_\_

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Approximate Change in Strata \_\_\_\_\_

Inferred Change in Strata \_\_\_\_\_

SECTION: ConRail, Hoboken Yard

BORINGS MADE BY: **Servillo**      DATE STARTED: **5/19/78**

INSPECTOR: **Henry** DATE COMPLETED: **5/19/78**

| Elevation G.W.T.         |  |       |
|--------------------------|--|-------|
| 0 Hr.                    |  | Date: |
| 24 Hr.                   |  | Date: |
| _____ ft. P.P. Installed |  | Date: |

Drove to 30' below deck. Virtually no resistance after first 5'.

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The Information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

Core Dia. \_\_\_\_\_

**Approximate Change in Strata** \_\_\_\_\_

**Inferred Change in Strata**

ROUTE: LOCAL NAME: **Waste Treatment Facility** TEST HOLE NO. **447W - 34**

SECTION: ConRail, Hoboken Yard

STATION:                      OFFSET:                      REFERENCE LINE:                      GROUND LINE ELEVATION:

BORINGS MADE BY: **Servillo**      DATE STARTED: **5/22/78**

Elevation G.W.T.

INSPECTOR: \_\_\_\_\_ DATE COMPLETED: 5/22/78

0 Hr. Date:

24 Hr. Date:

\_\_\_\_\_ ft. P.P. Installed                      Date:

| CASING<br>BLOWS | SAMPLE NO. | DEPTH | Blows on Spoon |         |          | REC. | Sample ID<br>and<br>Profile Change | _____ ft. P.P. Installed | Date: _____ |
|-----------------|------------|-------|----------------|---------|----------|------|------------------------------------|--------------------------|-------------|
|                 |            |       | 0<br>6         | 6<br>12 | 12<br>18 |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
| 5               |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
| 10              |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
| 15              |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
| 20              |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
| 25              |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
| 30              |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
| 35              |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
|                 |            |       |                |         |          |      |                                    |                          |             |
| 40              |            |       |                |         |          |      |                                    |                          |             |

holes

A) 14' stopped dead

B) 25' NOTE: Hard goint at 8-9', 15-16', 18-19'

\*Bottom 15' A-Rods bent

C) 16' stopped dead

|                                          |                 |     |
|------------------------------------------|-----------------|-----|
| Nominal I.D. of Drive Pipe               | <del>XXXX</del> | XX  |
| Nominal I.D. of Split Barrel Sampler     |                 | 1½" |
| Weight of hammer on Drive Pipe           | 300 lbs.        |     |
| Weight of hammer on Split Barrel Sampler | 140 lbs.        | *   |
| Drop of hammer on Drive Pipe             | 24"             |     |
| Drop of hammer on Split Barrel Sampler   | 30"             |     |

The Contractor shall make his own subsurface investigations in order to satisfy himself of the actual subsurface conditions. The information contained on this log is not warranted to show the actual subsurface conditions. The Contractor agrees that he will make no claims against the State if he finds that the actual conditions do not conform to those indicated by this log.

New Jersey Department of Transportation

Soils Bureau

**Core Dia.** \_\_\_\_\_

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

**Approximate Change in Strota** \_\_\_\_\_

**Inferred Change in Strata** -----

| ROUTE                         |                 | LOCAL NAME: NJ Transit - Hoboken Crew Quarters |       |                                                                       |        |         |              | BORING NO. B-1                                                                          |                                                  |                                                                      |
|-------------------------------|-----------------|------------------------------------------------|-------|-----------------------------------------------------------------------|--------|---------|--------------|-----------------------------------------------------------------------------------------|--------------------------------------------------|----------------------------------------------------------------------|
| SECTION:                      |                 | Hoboken Station, Hoboken, NJ                   |       |                                                                       |        |         |              | FIELD BORING NO.                                                                        |                                                  |                                                                      |
| STATION:                      |                 | OFFSET:                                        |       | REFERENCE LINE:                                                       |        |         |              | GROUND ELEVATION: ±7.25                                                                 |                                                  |                                                                      |
| BORING BY: Craig Test Borings |                 | DATE STARTED: 4/18/11                          |       | GROUND WATER ELEVATION<br>0 Hr. (Tidal) Date: 4/18/11<br>24 Hr. Date: |        |         |              |                                                                                         |                                                  |                                                                      |
| INSPECTOR: L. Berroteran      |                 | DATE COMPLETED: 4/20/11                        |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
| DEPTH<br>(ft)                 | CASING<br>BLOWS | SAMPLE<br>NO.                                  | DEPTH | Blows on Spoon                                                        |        |         | REC.<br>(in) | SOIL DESCRIPTION AND STRATIFICATION                                                     | (ft)                                             |                                                                      |
|                               |                 |                                                |       | 0 / 6                                                                 | 6 / 12 | 12 / 18 |              |                                                                                         |                                                  |                                                                      |
| 5                             | Hand            |                                                |       |                                                                       |        |         |              | FILL: Dark gray c(+)-f GRAVEL, some c-f Sand, little Silt                               |                                                  |                                                                      |
|                               | Augered         |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               | to 6 ft.        |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               | ⇓               |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
| 10                            |                 | S-1                                            | 6     | 8                                                                     | 2      | 3       | 12"          | FILL: SAME                                                                              |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       | 2      | 2       |              |                                                                                         | 8                                                |                                                                      |
|                               |                 | S-2                                            | 8     | 10                                                                    | 4      | 5       | 13"          |                                                                                         | Red-brown c-f SAND, some Silt, little m-f Gravel |                                                                      |
|                               |                 |                                                |       |                                                                       | 4      | 4       |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
| 15                            |                 | S-3                                            | 10    | 12                                                                    | 2      | 2       | 1"           | SAME                                                                                    |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       | 4      | 3       |              |                                                                                         |                                                  |                                                                      |
|                               | Casing          | S-4                                            | 12    | 14                                                                    | 6      | 5       | 11"          |                                                                                         | Red-brown c-f SAND, some Silt, little m-f Gravel |                                                                      |
|                               | Mud             |                                                |       |                                                                       | 4      | 6       |              |                                                                                         |                                                  |                                                                      |
|                               | ⇓               | S-5                                            | 14    | 16                                                                    | 4      | 4       | 2"           |                                                                                         |                                                  | Brown c-f SAND, little m-f Gravel, little Silt; coarse gravel in tip |
| 20                            |                 |                                                |       |                                                                       | 5      | 6       |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
| 25                            |                 | S-6                                            | 20    | 22                                                                    | 15     | 7       | 9"           | Red-brown c-f SAND, some m-f Gravel, little Silt<br>Note: drilling fluid lost at 20 ft. |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       | 11     | 7       |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
| 30                            |                 | S-7                                            | 25    | 27                                                                    | 6      | 4       | 2"           | Red-brown c-f SAND, some m-f Gravel, little Silt; coarse gravel in tip                  |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       | 4      | 6       |              |                                                                                         | 28                                               |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
| 35                            |                 | S-8                                            | 30    | 32                                                                    | 9      | 1       | 13"          | Black Silty CLAY; strong petroleum or organic odor                                      |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       | 2      | 2       |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
| 40                            |                 | S-9                                            | 35    | 37                                                                    | 3      | 3       | 12"          | Dark gray CLAY & SILT; frequent m-f Sand pockets, shells                                |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       | 2      | 2       |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |
|                               |                 |                                                |       |                                                                       |        |         |              |                                                                                         |                                                  |                                                                      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 ½ in.           |
| Weight/type of Hammer on Drive Pipe   | -                 |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | -                 |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             | NX                |

The subsurface information shown hereon was obtained for the Owner's design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the Owner. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgment of such authorized users.

Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                         |                 | LOCAL NAME: NJ Transit - Hoboken Crew Quarters |       |                 |                         |        |                                             |                         | BORING NO. B-1                                                                           |      |                                                           |
|-------------------------------|-----------------|------------------------------------------------|-------|-----------------|-------------------------|--------|---------------------------------------------|-------------------------|------------------------------------------------------------------------------------------|------|-----------------------------------------------------------|
| SECTION:                      |                 | Hoboken Station, Hoboken, NJ                   |       |                 |                         |        |                                             |                         | FIELD BORING NO.                                                                         |      |                                                           |
| STATION:                      |                 | OFFSET:                                        |       | REFERENCE LINE: |                         |        |                                             | GROUND ELEVATION: ±7.25 |                                                                                          |      |                                                           |
| BORING BY: Craig Test Borings |                 |                                                |       |                 | DATE STARTED: 4/18/11   |        | GROUND WATER ELEVATION                      |                         |                                                                                          |      |                                                           |
| INSPECTOR: L. Berroteran      |                 |                                                |       |                 | DATE COMPLETED: 4/20/11 |        | 0 Hr. (Tidal) Date: 4/18/11<br>24 Hr. Date: |                         |                                                                                          |      |                                                           |
| DEPTH<br>(ft)                 | CASING<br>BLOWS | SAMPLE<br>NO.                                  | DEPTH |                 | Blows on Spoon          |        |                                             | REC.<br>(in)            | SOIL DESCRIPTION AND STRATIFICATION                                                      | (ft) |                                                           |
|                               |                 |                                                |       |                 | 0 / 6                   | 6 / 12 | 12 / 18                                     |                         |                                                                                          |      |                                                           |
| 45                            | Casing          | S-10                                           | 40    | 42              | WOH                     | WOH    |                                             | 24"                     | Dark gray Silty CLAY; shells                                                             |      |                                                           |
|                               | Mud             |                                                |       |                 | WOH                     | WOH    |                                             |                         |                                                                                          |      |                                                           |
|                               | ↓               |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
| 50                            |                 | S-11                                           | 45    | 47              | WOH                     | WOH    |                                             | 17"                     | Dark gray Silty CLAY, trace f Gravel; shells                                             |      |                                                           |
|                               |                 |                                                |       |                 | WOH                     | WOH    |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
| 55                            |                 | S-12                                           | 50    | 52              | WOR                     | WOR    |                                             | 24"                     | SAME                                                                                     |      |                                                           |
|                               |                 |                                                |       |                 | WOH                     | 4      |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
| 60                            |                 | S-13                                           | 55    | 57              | 4                       | 8      |                                             | 20"                     | Brown Clayey SILT, some c-f Sand, little m-f(+) Gravel                                   |      |                                                           |
|                               |                 |                                                |       |                 | 9                       | 10     |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
| 65                            |                 | S-14                                           | 60    | 60.4            | 100/5                   |        |                                             | 5"                      | Brown-green Clayey SILT, some m-f Gravel, little c-f Sand                                | 61   |                                                           |
|                               |                 | C-1                                            | 61    | 66              |                         |        | Run                                         | 60"                     |                                                                                          |      | Green SERPENTINE; soft, highly weathered, gouge in joints |
|                               |                 |                                                |       |                 |                         |        | Rec.                                        | 20%                     |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        | RQD                                         | 0%                      |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
| 70                            |                 | S-                                             | 66    | 66.1            | 100/1                   |        |                                             | NR                      | SAME                                                                                     |      |                                                           |
|                               |                 | C-2                                            | 66.1  | 71.1            |                         |        | Run                                         | 60"                     |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        | Rec.                                        | 45%                     |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        | RQD                                         | 7%                      |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
| 75                            |                 | C-3                                            | 71.1  | 76.1            |                         |        | Run                                         | 60"                     | SAME                                                                                     |      |                                                           |
|                               |                 |                                                |       |                 |                         |        | Rec.                                        | 28%                     |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        | RQD                                         | 7%                      |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
| 80                            |                 | C-4                                            | 76.1  | 81.1            |                         |        | Run                                         | 60"                     | Green SERPENTINE; hard, slightly weathered, slightly rough joints at 45° and horizontal. |      |                                                           |
|                               |                 |                                                |       |                 |                         |        | Rec.                                        | 93%                     |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        | RQD                                         | 55%                     |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |
|                               |                 |                                                |       |                 |                         |        |                                             |                         |                                                                                          |      |                                                           |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 ½ in.           |
| Weight/type of Hammer on Drive Pipe   | -                 |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | -                 |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             | NX                |

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

| ROUTE                         |                 | LOCAL NAME: NJ Transit - Hoboken Crew Quarters |       |                                                                                         |        | BORING NO. B-1          |              |                                     |      |
|-------------------------------|-----------------|------------------------------------------------|-------|-----------------------------------------------------------------------------------------|--------|-------------------------|--------------|-------------------------------------|------|
| SECTION:                      |                 | Hoboken Station, Hoboken, NJ                   |       |                                                                                         |        | FIELD BORING NO.        |              |                                     |      |
| STATION:                      |                 | OFFSET:                                        |       | REFERENCE LINE:                                                                         |        | GROUND ELEVATION: ±7.25 |              |                                     |      |
| BORING BY: Craig Test Borings |                 | DATE STARTED: 4/18/11                          |       | GROUND WATER ELEVATION<br>0 Hr. (Tidal)      Date: 4/18/11<br>24 Hr.              Date: |        |                         |              |                                     |      |
| INSPECTOR: L. Berroteran      |                 | DATE COMPLETED: 4/20/11                        |       |                                                                                         |        |                         |              |                                     |      |
| DEPTH<br>(ft)                 | CASING<br>BLOWS | SAMPLE<br>NO.                                  | DEPTH | Blows on Spoon                                                                          |        |                         | REC.<br>(in) | SOIL DESCRIPTION AND STRATIFICATION | (ft) |
|                               |                 |                                                |       | 0 / 6                                                                                   | 6 / 12 | 12 / 18                 |              |                                     |      |
|                               | Casing          |                                                |       |                                                                                         |        |                         |              | Bottom of Boring 81.1 ft.           |      |
|                               | Mud             |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               | ↓               |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
| 85                            |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
| 90                            |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
| 95                            |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
| 100                           |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
| 105                           |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
| 110                           |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
| 115                           |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
|                               |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |
| 120                           |                 |                                                |       |                                                                                         |        |                         |              |                                     |      |

Notes:  
 50/1, etc. = 50 hammer blows over 1 in. of penetration, etc.  
 WOR = weight of rods  
 WOH = weight of hammer

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 5/8 in.         |
| Weight/type of Hammer on Drive Pipe   | -                 |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | -                 |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             | NX                |

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Approximate Change in Strata \_\_\_\_\_  
 Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                        |                 | LOCAL NAME: NJ Transit - Pullman Yard Crew Trailer |       |                 |                            |        |                                                                                                                                                                        | BORING NO. B-1        |                                                  |      |
|------------------------------|-----------------|----------------------------------------------------|-------|-----------------|----------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------|------|
| SECTION:                     |                 | Hoboken Station, Hoboken, NJ                       |       |                 |                            |        |                                                                                                                                                                        | FIELD BORING NO.      |                                                  |      |
| STATION:                     |                 | OFFSET:                                            |       | REFERENCE LINE: |                            |        |                                                                                                                                                                        | GROUND ELEVATION: ±10 |                                                  |      |
| BORING BY: Craig Test Boring |                 |                                                    |       |                 | DATE STARTED: 10-26-2012   |        | GROUND WATER ELEVATION<br>0 Hr. El. 5 (Tidal)                      Date: 10-26-2012<br>24 Hr.                                              Date:<br>ft. P.P. installed |                       |                                                  |      |
| INSPECTOR: J. Agamie         |                 |                                                    |       |                 | DATE COMPLETED: 10-26-2012 |        |                                                                                                                                                                        |                       |                                                  |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                      | DEPTH |                 | Blows on Spoon             |        |                                                                                                                                                                        | REC.<br>(in)          | SOIL DESCRIPTION AND STRATIFICATION              | (ft) |
|                              |                 |                                                    |       |                 | 0 / 6                      | 6 / 12 | 12 / 18                                                                                                                                                                |                       |                                                  |      |
| 5                            | CASING          | S-1                                                | 0     | 2               | 16                         | 26     |                                                                                                                                                                        | 10"                   | 4" Asphalt                                       |      |
|                              | ↓               |                                                    |       |                 | 9                          | 5      |                                                                                                                                                                        |                       | FILL: Black m-f Gravel, trace c-m Sand; organics |      |
|                              |                 | S-2                                                | 2     | 4               | 5                          | 2      |                                                                                                                                                                        | 12"                   | SAME                                             |      |
|                              |                 |                                                    |       |                 | 1                          | 1      |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 | S-3                                                | 4     | 6               | 5                          | 3      |                                                                                                                                                                        | 12"                   | FILL: Brown c-f SAND, some(+) black m-f Gravel   |      |
| 10                           |                 |                                                    |       |                 | 2                          | 3      |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 | S-4                                                | 6     | 8               | 1                          | 2      |                                                                                                                                                                        | 10"                   | FILL: Black c-f GRAVEL, some m-f Sand            |      |
|                              |                 |                                                    |       |                 | WOH                        | 1      |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 | S-5                                                | 8     | 10              | 1                          | 1      |                                                                                                                                                                        | 10"                   | SAME                                             |      |
|                              |                 |                                                    |       |                 | 1                          | 1      |                                                                                                                                                                        |                       |                                                  | 10   |
| 15                           |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
| 20                           | MUD             | S-6                                                | 15    | 17              | WOH                        | WOH    |                                                                                                                                                                        | 1"                    | Gray CLAY & SILT, little(-) brown Sand           |      |
|                              | ↓               |                                                    |       |                 | WOH                        | 1      |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
| 25                           |                 | S-7                                                | 20    | 22              | WOH                        | WOH    |                                                                                                                                                                        | 24"                   | Gray CLAY & SILT, trace f Sand; organics         |      |
|                              |                 |                                                    |       |                 | WOH                        | 2      |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  | 23   |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
| 30                           |                 | S-8                                                | 25    | 27              | 1                          | 2      |                                                                                                                                                                        | 16"                   | Gray m(+)-f SAND, some(-) Silt                   |      |
|                              |                 |                                                    |       |                 | 2                          | 6      |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
| 35                           |                 | S-9                                                | 30    | 32              | 5                          | 6      |                                                                                                                                                                        | 18"                   | SAME                                             |      |
|                              |                 |                                                    |       |                 | 8                          | 8      |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  | 33   |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
| 40                           |                 | S-10                                               | 35    | 37              | 7                          | 6      |                                                                                                                                                                        | 22"                   | Gray Clayey SILT, some(+) f Sand                 |      |
|                              |                 |                                                    |       |                 | 8                          | 9      |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |
|                              |                 |                                                    |       |                 |                            |        |                                                                                                                                                                        |                       |                                                  |      |

|                                       |              |
|---------------------------------------|--------------|
| Nominal I.D. of Casing                | 4 in.        |
| Nominal I.D. of Split Barrel Sampler  | 1 ½ in.      |
| Weight/type of Hammer on Drive Pipe   | 300 lb.      |
| Weight/type of Hammer on Split Barrel | 140 lb. Auto |
| Drop of Hammer on Drive Pipe          | 24 in.       |
| Drop of Hammer on Split Barrel        | 30 in.       |
| Core Size                             | NA           |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                        |              | LOCAL NAME: NJ Transit - Pullman Yard Crew Trailer |       |                                      |                |        |         | BORING NO. B-1        |                                                   |      |
|------------------------------|--------------|----------------------------------------------------|-------|--------------------------------------|----------------|--------|---------|-----------------------|---------------------------------------------------|------|
| SECTION:                     |              | Hoboken Station, Hoboken, NJ                       |       |                                      |                |        |         | FIELD BORING NO.      |                                                   |      |
| STATION:                     |              | OFFSET:                                            |       | REFERENCE LINE:                      |                |        |         | GROUND ELEVATION: ±10 |                                                   |      |
| BORING BY: Craig Test Boring |              | DATE STARTED: 10-26-2012                           |       | GROUND WATER ELEVATION               |                |        |         |                       |                                                   |      |
| INSPECTOR: J. Agamie         |              | DATE COMPLETED: 10-26-2012                         |       | 0 Hr. El. 5 (Tidal) Date: 10-26-2012 |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       | 24 Hr. ft. P.P. installed Date:      |                |        |         |                       |                                                   |      |
| DEPTH (ft)                   | CASING BLOWS | SAMPLE NO.                                         | DEPTH |                                      | Blows on Spoon |        |         | REC. (in)             | SOIL DESCRIPTION AND STRATIFICATION               | (ft) |
|                              |              |                                                    |       |                                      | 0 / 6          | 6 / 12 | 12 / 18 |                       |                                                   |      |
| 45                           | MUD          | S-11                                               | 40    | 42                                   | 13             | 14     |         | 4"                    | Gray Clayey SILT, some(+) m-f Sand; gravel in tip |      |
|                              | ↓            |                                                    |       |                                      | 15             | 18     |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   | 43   |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
| 50                           |              | S-12                                               | 45    | 47                                   | 17             | 16     |         | 16"                   | Brown m-f SAND, trace Silt                        |      |
|                              |              |                                                    |       |                                      | 13             | 11     |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
| 55                           |              |                                                    |       |                                      |                |        |         |                       | Bottom of Hole 47 ft.                             |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
| 60                           |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
| 65                           |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
| 70                           |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
| 75                           |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
| 80                           |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |
|                              |              |                                                    |       |                                      |                |        |         |                       |                                                   |      |

|                                       |              |
|---------------------------------------|--------------|
| Nominal I.D. of Casing                | 4 in.        |
| Nominal I.D. of Split Barrel Sampler  | 1 ½ in.      |
| Weight/type of Hammer on Drive Pipe   | 300 lb.      |
| Weight/type of Hammer on Split Barrel | 140 lb. Auto |
| Drop of Hammer on Drive Pipe          | 24 in.       |
| Drop of Hammer on Split Barrel        | 30 in.       |
| Core Size                             | NA           |

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

| ROUTE                                                    |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                 |                |        |         |                                                                                       | BORING NO. B-1                                            |                                                                                |  |
|----------------------------------------------------------|-----------------|------------------------------------------------------|-------|-----------------|----------------|--------|---------|---------------------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------------------------------|--|
| SECTION:                                                 |                 | Newark St. & Sinatra Dr., Hoboken, NJ                |       |                 |                |        |         |                                                                                       | FIELD BORING NO.                                          |                                                                                |  |
| STATION:                                                 |                 | OFFSET:                                              |       | REFERENCE LINE: |                |        |         | GROUND ELEVATION: ±7.0                                                                |                                                           |                                                                                |  |
| BORING BY: Craig Test Boring      DATE STARTED: 9-1-2015 |                 |                                                      |       |                 |                |        |         | GROUND WATER ELEVATION<br>0 Hr.      Date:<br>24 Hr.      Date:<br>ft. P.P. installed |                                                           |                                                                                |  |
| INSPECTOR: C. Baldwin      DATE COMPLETED: 9-1-2015      |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
| DEPTH<br>(ft)                                            | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                 | Blows on Spoon |        |         | REC.<br>(in)                                                                          | SOIL DESCRIPTION AND STRATIFICATION                       | (ft)                                                                           |  |
|                                                          |                 |                                                      |       |                 | 0 / 6          | 6 / 12 | 12 / 18 |                                                                                       |                                                           |                                                                                |  |
| 5                                                        | Casing          | S-1                                                  | 0     | 2               | 6              | 6      |         | 14                                                                                    | Brown c-f SAND, some(+) Silt, trace f Gravel              |                                                                                |  |
|                                                          | ↓               |                                                      |       |                 | 6              | 5      |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 | S-2                                                  | 2     | 4               | 4              | 5      |         | 10                                                                                    |                                                           | SAME                                                                           |  |
|                                                          |                 |                                                      |       |                 | 6              | 16     |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 | S-3                                                  | 4     | 6               | 7              | 7      |         | 12                                                                                    |                                                           | Gray c-f SAND, some(-) Silt, trace m-f Gravel                                  |  |
| 10                                                       |                 |                                                      |       |                 | 7              | 12     |         |                                                                                       | SAME                                                      |                                                                                |  |
|                                                          |                 | S-4                                                  | 6     | 8               | 10             | 7      |         | 10                                                                                    |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 | 9              | 7      |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 | S-5                                                  | 8     | 10              | 8              | 12     |         | 8                                                                                     |                                                           | Dark brown and gray c-f SAND, little Silt, trace m-f Gravel;<br>trace woodchip |  |
|                                                          |                 |                                                      |       |                 | 16             | 10     |         |                                                                                       |                                                           |                                                                                |  |
| 15                                                       |                 | S-6                                                  | 10    | 11.3            | 10             | 45     |         | 12                                                                                    | Woodchip?                                                 |                                                                                |  |
|                                                          |                 |                                                      |       |                 | 50/3"          |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
| 20                                                       |                 | S-7                                                  | 15    | 17              | WoH            | WoH    |         | NR                                                                                    | Black m-f SAND, some Silt; shell, brick fragment          |                                                                                |  |
|                                                          |                 |                                                      |       |                 | 18             | 1      |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
| 25                                                       |                 | S-8                                                  | 20    | 22              | WoR            | WoH    |         | NR                                                                                    | Black Clayey SILT, and m-f Sand; wood and shell fragments |                                                                                |  |
|                                                          |                 |                                                      |       |                 | WoH            | WoH    |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 | Mud                                                  |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
| 30                                                       | ↓               | S-9                                                  | 25    | 27              | WoR            | WoH    |         | 20                                                                                    | Black CLAY; trace organics                                |                                                                                |  |
|                                                          |                 |                                                      |       |                 | WoH            | WoH    |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
| 35                                                       |                 | S-10                                                 | 30    | 32              | WoR            | WoR    |         | 22                                                                                    | SAME                                                      |                                                                                |  |
|                                                          |                 |                                                      |       |                 | WoR            | WoR    |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
| 40                                                       |                 | S-11                                                 | 35    | 37              | WoR            | WoR    |         | 24                                                                                    | SAME                                                      |                                                                                |  |
|                                                          |                 |                                                      |       |                 | WoR            | WoR    |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |
|                                                          |                 |                                                      |       |                 |                |        |         |                                                                                       |                                                           |                                                                                |  |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|------------------------------|-----------------|------------------------------------------------------|-------|-----------------|--------------------------|--------|---------|-----------------------------------------------------------------------------|-------------------------------------------------|------|
| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                 |                          |        |         | BORING NO. B-1                                                              |                                                 |      |
| SECTION:                     |                 | Newark St. & Sinatra Dr., Hoboken, NJ                |       |                 |                          |        |         | FIELD BORING NO.                                                            |                                                 |      |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE: |                          |        |         | GROUND ELEVATION: ±7.0                                                      |                                                 |      |
| BORING BY: Craig Test Boring |                 |                                                      |       |                 | DATE STARTED: 9-1-2015   |        |         | GROUND WATER ELEVATION<br>0 Hr. Date:<br>24 Hr. Date:<br>ft. P.P. installed |                                                 |      |
| INSPECTOR: C. Baldwin        |                 |                                                      |       |                 | DATE COMPLETED: 9-1-2015 |        |         |                                                                             |                                                 |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                 | Blows on Spoon           |        |         | REC.<br>(in)                                                                | SOIL DESCRIPTION AND STRATIFICATION             | (ft) |
|                              |                 |                                                      |       |                 | 0 / 6                    | 6 / 12 | 12 / 18 |                                                                             |                                                 |      |
| 45                           |                 | S-12                                                 | 40    | 42              | WoR                      | WoR    |         | 24                                                                          | Dark gray CLAY, trace f Sand                    |      |
|                              |                 |                                                      |       |                 | WoR                      | WoR    |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
| 50                           |                 | S-13                                                 | 45    | 47              | WoR                      | WoR    |         | 24                                                                          | SAME                                            |      |
|                              |                 |                                                      |       |                 | WoR                      | WoR    |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
| 55                           |                 | S-14                                                 | 50    | 52              | WoR                      | WoR    |         | 24                                                                          | SAME                                            |      |
|                              |                 |                                                      |       |                 | WoR                      | WoR    |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
| 60                           |                 | S-15                                                 | 55    | 57              | WoR                      | WoR    |         | 24                                                                          | SAME                                            |      |
|                              |                 |                                                      |       |                 | WoR                      | WoR    |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
| 65                           |                 | S-16                                                 | 60    | 62              | WoR                      | WoR    |         | 24                                                                          | SAME                                            |      |
|                              |                 |                                                      |       |                 | WoR                      | WoR    |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
| 70                           |                 | S-17                                                 | 65    | 67              | WoR                      | WoR    |         | 24                                                                          | Clayey SILT, and m-f Sand                       |      |
|                              |                 |                                                      |       |                 | WoR                      | WoR    |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
| 75                           |                 | S-18                                                 | 70    | 72              | 9                        | 7      |         | 8                                                                           | Light brown m-f SAND, some Silt, trace f Gravel |      |
|                              |                 |                                                      |       |                 | 7                        | 7      |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
| 80                           |                 | S-19                                                 | 75    | 77              | 9                        | 9      |         | 18                                                                          | SAME                                            |      |
|                              |                 |                                                      |       |                 | 13                       | 15     |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             |                                                 |      |
|                              |                 |                                                      |       |                 |                          |        |         |                                                                             | Hard drilling @78'                              |      |

Drill chatter @68' & water loss

Hard drilling @78'

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata

Inferred Change in Strata

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted

| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                          |    | BORING NO. B-1                                    |        |         |                                                                                                                       |                                     |      |
|------------------------------|-----------------|------------------------------------------------------|-------|--------------------------|----|---------------------------------------------------|--------|---------|-----------------------------------------------------------------------------------------------------------------------|-------------------------------------|------|
| SECTION:                     |                 | Newark St. & Sinatra Dr., Hoboken, NJ                |       |                          |    | FIELD BORING NO.                                  |        |         |                                                                                                                       |                                     |      |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE:          |    | GROUND ELEVATION: ±7.0                            |        |         |                                                                                                                       |                                     |      |
| BORING BY: Craig Test Boring |                 |                                                      |       | DATE STARTED: 9-1-2015   |    | GROUND WATER ELEVATION                            |        |         |                                                                                                                       |                                     |      |
| INSPECTOR: C. Baldwin        |                 |                                                      |       | DATE COMPLETED: 9-1-2015 |    | 0 Hr. Date:<br>24 Hr. Date:<br>ft. P.P. installed |        |         |                                                                                                                       |                                     |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                          |    | Blows on Spoon                                    |        |         | REC.<br>(in)                                                                                                          | SOIL DESCRIPTION AND STRATIFICATION | (ft) |
|                              |                 |                                                      | 80    | 82                       |    | 0 / 6                                             | 6 / 12 | 12 / 18 |                                                                                                                       |                                     |      |
| 85                           |                 | S-20                                                 | 80    | 82                       | 16 | 14                                                |        | 12      | Gray and green c-f GRAVEL, some Silt, some m-f Sand;<br>Surpentine chips<br>Decomposed Rock@82.0'<br>Drilled to 84.0' |                                     |      |
|                              |                 |                                                      |       |                          | 15 | 50                                                |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
| 90                           |                 |                                                      |       |                          |    |                                                   |        |         | Bottom of Boring 84.0'                                                                                                |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
| 95                           |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
| 100                          |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
| 105                          |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
| 110                          |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
| 115                          |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
| 120                          |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |
|                              |                 |                                                      |       |                          |    |                                                   |        |         |                                                                                                                       |                                     |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
 Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted

| ROUTE                         |                 | LOCAL NAME: NJ Transit - Hoboken Crew Quarters |       |                         |        |                        |              | BORING NO. B-2                                                            |                                                                                 |  |
|-------------------------------|-----------------|------------------------------------------------|-------|-------------------------|--------|------------------------|--------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------|--|
| SECTION:                      |                 | Hoboken Station, Hoboken, NJ                   |       |                         |        |                        |              | FIELD BORING NO.                                                          |                                                                                 |  |
| STATION:                      |                 | OFFSET:                                        |       | REFERENCE LINE:         |        |                        |              | GROUND ELEVATION: ±7.0                                                    |                                                                                 |  |
| BORING BY: Craig Test Borings |                 | DATE STARTED: 4/18/11                          |       | 0 Hr. (Tidal)<br>24 Hr. |        | GROUND WATER ELEVATION |              | Date: 4/19/11<br>Date:                                                    |                                                                                 |  |
| INSPECTOR: L. Berroteran      |                 | DATE COMPLETED: 4/20/11                        |       |                         |        |                        |              |                                                                           |                                                                                 |  |
| DEPTH<br>(ft)                 | CASING<br>BLOWS | SAMPLE<br>NO.                                  | DEPTH | Blows on Spoon          |        |                        | REC.<br>(in) | SOIL DESCRIPTION AND STRATIFICATION                                       | (ft)                                                                            |  |
|                               |                 |                                                |       | 0 / 6                   | 6 / 12 | 12 / 18                |              |                                                                           |                                                                                 |  |
| 5                             | Hand            |                                                |       |                         |        |                        |              | FILL: Dark gray c(+)-f GRAVEL, some Silt, little c-f Sand,                |                                                                                 |  |
|                               | Augered         |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               | to 6 ft.        |                                                |       |                         |        |                        |              |                                                                           | FILL: Black c-f GRAVEL, some Silt, some(-) c-f Sand;<br>abundant coal fragments |  |
|                               | ↓               |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
| 10                            |                 | S-1                                            | 6     | 8                       | 4      | 2                      | 12"          | FILL: SAME                                                                | 7                                                                               |  |
|                               |                 |                                                |       |                         | 2      | 2                      |              | Red-brown c-f SAND, some Silt, little(-) m-f(-) Gravel<br>SAME            |                                                                                 |  |
|                               |                 | S-2                                            | 8     | 9.6                     | 3      | 3                      | 13"          |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         | 9      | 50/1                   |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
| 15                            | Casing          | S-                                             | 10    | 10.1                    | 100/1  |                        | NR           | Obstruction from 9.5 to 13 ft. deep                                       |                                                                                 |  |
|                               | Mud             |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               | ↓               |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 | S-3                                            | 13    | 15                      | 9      | 4                      | 12"          |                                                                           | Red-brown c-f SAND, some Silt, little m-f Gravel                                |  |
|                               |                 |                                                |       |                         | 2      | 2                      |              |                                                                           |                                                                                 |  |
| 20                            |                 | S-4                                            | 15    | 17                      | 6      | 3                      | 2"           | Red-brown m-f GRAVEL, some Silt, little c-f Sand; coarse<br>gravel in tip |                                                                                 |  |
|                               |                 |                                                |       |                         | 4      | 2                      |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
| 25                            |                 | S-5                                            | 20    | 22                      | 5      | 3                      | 4"           | SAME                                                                      |                                                                                 |  |
|                               |                 |                                                |       |                         | 4      | 3                      |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
| 30                            |                 | S-6                                            | 25    | 27                      | 3      | 1                      | 1"           | Coarse gravel in tip                                                      |                                                                                 |  |
|                               |                 |                                                |       |                         | 1/12"  | -                      |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
| 35                            |                 | S-7                                            | 30    | 32                      | WOR    | WOH                    | 6"           | Black Silty CLAY; strong petroleum or organic odor                        |                                                                                 |  |
|                               |                 |                                                |       |                         | WOH    | WOH                    |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
| 40                            |                 | S-8                                            | 35    | 37                      | WOR    | WOR                    | 20"          | SAME                                                                      |                                                                                 |  |
|                               |                 |                                                |       |                         | WOH    | WOH                    |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |
|                               |                 |                                                |       |                         |        |                        |              |                                                                           |                                                                                 |  |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 ½ in.           |
| Weight/type of Hammer on Drive Pipe   | -                 |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | -                 |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             | NX                |

The subsurface information shown hereon was obtained for the Owner's design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the Owner. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgment of such authorized users.

Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                         |                 | LOCAL NAME: NJ Transit - Hoboken Crew Quarters |       |                 |                         |        |                                             | BORING NO. B-2         |                                                                                                                          |                                                                                   |  |
|-------------------------------|-----------------|------------------------------------------------|-------|-----------------|-------------------------|--------|---------------------------------------------|------------------------|--------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|--|
| SECTION:                      |                 | Hoboken Station, Hoboken, NJ                   |       |                 |                         |        |                                             | FIELD BORING NO.       |                                                                                                                          |                                                                                   |  |
| STATION:                      |                 | OFFSET:                                        |       | REFERENCE LINE: |                         |        |                                             | GROUND ELEVATION: ±7.0 |                                                                                                                          |                                                                                   |  |
| BORING BY: Craig Test Borings |                 |                                                |       |                 | DATE STARTED: 4/18/11   |        | GROUND WATER ELEVATION                      |                        |                                                                                                                          |                                                                                   |  |
| INSPECTOR: L. Berroteran      |                 |                                                |       |                 | DATE COMPLETED: 4/20/11 |        | 0 Hr. (Tidal) Date: 4/19/11<br>24 Hr. Date: |                        |                                                                                                                          |                                                                                   |  |
| DEPTH<br>(ft)                 | CASING<br>BLOWS | SAMPLE<br>NO.                                  | DEPTH |                 | Blows on Spoon          |        |                                             | REC.<br>(in)           | SOIL DESCRIPTION AND STRATIFICATION                                                                                      | (ft)                                                                              |  |
|                               |                 |                                                |       |                 | 0 / 6                   | 6 / 12 | 12 / 18                                     |                        |                                                                                                                          |                                                                                   |  |
| 45                            | Casing          | S-9                                            | 40    | 42              | WOH                     | WOH    |                                             | 24"                    | Dark gray CLAY & SILT; shells                                                                                            |                                                                                   |  |
|                               | Mud             |                                                |       |                 | WOH                     | WOH    |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               | ↓               |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
| 50                            |                 | S-10                                           | 45    | 47              | WOH                     | WOH    |                                             | 24"                    | SAME                                                                                                                     |                                                                                   |  |
|                               |                 |                                                |       |                 | WOH                     | 1      |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
| 55                            |                 | S-11                                           | 50    | 52              | 6                       | 5      |                                             | 10"                    | Dark gray Clayey SILT, and(-) m-f Gravel, little c-f Sand                                                                |                                                                                   |  |
|                               |                 |                                                |       |                 | 10                      | 10     |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
| 60                            |                 | S-12                                           | 55    | 57              | 10                      | 19     |                                             | 18"                    | Brown Clayey SILT, and c-f Sand, little(-) f Gravel                                                                      |                                                                                   |  |
|                               |                 |                                                |       |                 | 29                      | 29     |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
| 65                            |                 | S-13                                           | 60    | 60.4            | 100/5                   |        |                                             |                        | Brown-green Clayey SILT, and(-) m-f Gravel, little c-f Sand                                                              | 61                                                                                |  |
|                               |                 | C-1                                            | 60.4  | 65.4            |                         |        | Run                                         | 60"                    |                                                                                                                          | Green SERPENTINE; soft, highly weathered, rough frequent joints filled with gouge |  |
|                               |                 |                                                |       |                 |                         |        | Rec.                                        | 82%                    |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        | RQD                                         | 17%                    |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
| 70                            |                 | C-2                                            | 65.4  | 70.4            |                         |        | Run                                         | 60"                    | Green SERPENTINE; hard, moderately weathered, slightly rough frequent joints at 45° and horizontal.                      |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        | Rec.                                        | 93%                    |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        | RQD                                         | 42%                    |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
| 75                            |                 |                                                |       |                 |                         |        |                                             |                        | Bottom of Boring 70.4 ft.                                                                                                |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
| 80                            |                 |                                                |       |                 |                         |        |                                             |                        | Notes:<br>50/1, etc. = 50 hammer blows over 1 in. of penetration, etc.<br>WOR = weight of rods<br>WOH = weight of hammer |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |
|                               |                 |                                                |       |                 |                         |        |                                             |                        |                                                                                                                          |                                                                                   |  |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 ½ in.           |
| Weight/type of Hammer on Drive Pipe   | -                 |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | -                 |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             | NX                |

The subsurface information shown hereon was obtained for the Owner's design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the Owner. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgment of such authorized users.

Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                        |                 | LOCAL NAME: NJ Transit - Pullman Yard Crew Trailer |       |                 |                            |        |         | BORING NO. B-2                                                                                                 |                                                      |      |
|------------------------------|-----------------|----------------------------------------------------|-------|-----------------|----------------------------|--------|---------|----------------------------------------------------------------------------------------------------------------|------------------------------------------------------|------|
| SECTION:                     |                 | Hoboken Station, Hoboken, NJ                       |       |                 |                            |        |         | FIELD BORING NO.                                                                                               |                                                      |      |
| STATION:                     |                 | OFFSET:                                            |       | REFERENCE LINE: |                            |        |         | GROUND ELEVATION: ±10                                                                                          |                                                      |      |
| BORING BY: Craig Test Boring |                 |                                                    |       |                 | DATE STARTED: 10-26-2012   |        |         | GROUND WATER ELEVATION<br>0 Hr. El. 5 (Tidal)      Date: 10-26-2012<br>24 Hr.      Date:<br>ft. P.P. installed |                                                      |      |
| INSPECTOR: J. Agamie         |                 |                                                    |       |                 | DATE COMPLETED: 10-26-2012 |        |         |                                                                                                                |                                                      |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                      | DEPTH |                 | Blows on Spoon             |        |         | REC.<br>(in)                                                                                                   | SOIL DESCRIPTION AND STRATIFICATION                  | (ft) |
|                              |                 |                                                    |       |                 | 0 / 6                      | 6 / 12 | 12 / 18 |                                                                                                                |                                                      |      |
| 5                            | CASING          | S-1                                                | 0     | 2               | 19                         | 17     |         | 15"                                                                                                            | 4" Asphalt                                           |      |
|                              | ⇓               |                                                    |       |                 | 15                         | 15     |         |                                                                                                                | FILL: Dark brown m-f SAND, some(+) f black Gravel    |      |
|                              |                 | S-2                                                | 2     | 4               | 11                         | 7      |         | 10"                                                                                                            | FILL: Dark brown m(+)-f SAND, some(+) f black Gravel |      |
|                              |                 |                                                    |       |                 | 5                          | 3      |         |                                                                                                                |                                                      |      |
|                              |                 | S-3                                                | 4     | 6               | 3                          | 2      |         | 14"                                                                                                            | FILL: Brown m-f GRAVEL, some m(+)-f Sand             |      |
| 10                           |                 |                                                    |       |                 | 3                          | 2      |         |                                                                                                                |                                                      |      |
|                              |                 | S-4                                                | 6     | 8               | 1                          | 1      |         | 8"                                                                                                             | FILL: Black m-f GRAVEL, some f Sand                  |      |
|                              |                 |                                                    |       |                 | WOH                        | 1      |         |                                                                                                                |                                                      |      |
|                              |                 | S-5                                                | 8     | 10              | 1                          | WOH    |         | 6"                                                                                                             | SAME                                                 |      |
|                              |                 |                                                    |       |                 | 2                          | 1      |         |                                                                                                                |                                                      | 10   |
| 15                           |                 | S-6                                                | 10    | 12              | 3                          | 2      |         | 10"                                                                                                            | Black-gray CLAY & SILT, little(-) f Sand             |      |
|                              |                 |                                                    |       |                 | WOH                        | 1      |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
| 20                           | MUD             | S-7                                                | 15    | 17              | 2                          | 1      |         | 12"                                                                                                            | Black CLAY & SILT, trace f Sand                      |      |
|                              | ⇓               |                                                    |       |                 | 2                          | 1      |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
| 25                           |                 | S-8                                                | 20    | 22              | WOH                        | WOH    |         | 18"                                                                                                            | Gray CLAY & SILT, little f Sand; organics            |      |
|                              |                 |                                                    |       |                 | WOH                        | WOH    |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      | 23   |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
| 30                           |                 | S-9                                                | 25    | 27              | 1                          | 2      |         | 20"                                                                                                            | Gray m SAND, trace(+) Clayey Silt                    |      |
|                              |                 |                                                    |       |                 | 6                          | 8      |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
| 35                           |                 | S-10                                               | 30    | 32              | 5                          | 6      |         | 12"                                                                                                            | SAME                                                 |      |
|                              |                 |                                                    |       |                 | 10                         | 8      |         |                                                                                                                |                                                      | 33   |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
| 40                           |                 | S-11                                               | 35    | 37              | 4                          | 7      |         | 20"                                                                                                            | Gray Clayey SILT, some(+) f Sand                     |      |
|                              |                 |                                                    |       |                 | 9                          | 9      |         |                                                                                                                |                                                      | 38   |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |
|                              |                 |                                                    |       |                 |                            |        |         |                                                                                                                |                                                      |      |

|                                       |              |
|---------------------------------------|--------------|
| Nominal I.D. of Casing                | 4 in.        |
| Nominal I.D. of Split Barrel Sampler  | 1 ½ in.      |
| Weight/type of Hammer on Drive Pipe   | 300 lb.      |
| Weight/type of Hammer on Split Barrel | 140 lb. Auto |
| Drop of Hammer on Drive Pipe          | 24 in.       |
| Drop of Hammer on Split Barrel        | 30 in.       |
| Core Size                             | NA           |

The subsurface information shown hereon was obtained for the Owner's design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the Owner. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgment of such authorized users.

Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|------------------------------|--------------|----------------------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------|---------|-----------------------|-------------------------------------------------------------------------------------------|------|
| ROUTE                        |              | LOCAL NAME: NJ Transit - Pullman Yard Crew Trailer |       |                                                                                                                                                                |                |        |         | BORING NO. B-2        |                                                                                           |      |
| SECTION:                     |              | Hoboken Station, Hoboken, NJ                       |       |                                                                                                                                                                |                |        |         | FIELD BORING NO.      |                                                                                           |      |
| STATION:                     |              | OFFSET:                                            |       | REFERENCE LINE:                                                                                                                                                |                |        |         | GROUND ELEVATION: ±10 |                                                                                           |      |
| BORING BY: Craig Test Boring |              | DATE STARTED: 10-26-2012                           |       | GROUND WATER ELEVATION<br>0 Hr. El. 5 (Tidal)                      Date: 10-26-2012<br>24 Hr.                                      Date:<br>ft. P.P. installed |                |        |         |                       |                                                                                           |      |
| INSPECTOR: J. Agamie         |              | DATE COMPLETED: 10-26-2012                         |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
| DEPTH (ft)                   | CASING BLOWS | SAMPLE NO.                                         | DEPTH |                                                                                                                                                                | Blows on Spoon |        |         | REC. (in)             | SOIL DESCRIPTION AND STRATIFICATION                                                       | (ft) |
|                              |              |                                                    |       |                                                                                                                                                                | 0 / 6          | 6 / 12 | 12 / 18 |                       |                                                                                           |      |
| 45                           | MUD          | S-12                                               | 40    | 42                                                                                                                                                             | 3              | 10     |         | 12"                   | Brown m-f(+) SAND, some m-f(+) Gravel, little(+) Silt<br><br>Note: chatter from 42-44 ft. |      |
|                              | ↓            |                                                    |       |                                                                                                                                                                | 14             | 12     |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
| 50                           |              | S-13                                               | 45    | 47                                                                                                                                                             | 16             | 18     |         | 2"                    | Note: Gray GRAVEL in tip                                                                  |      |
|                              |              |                                                    |       |                                                                                                                                                                | 24             | 18     |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
| 55                           |              | S-14                                               | 50    | 52                                                                                                                                                             | 11             | 9      |         | 14"                   | Brown m SAND, trace Silt<br><br>SAME                                                      |      |
|                              |              |                                                    |       |                                                                                                                                                                | 10             | 100/5  |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              | S-15                                               | 53    | 55                                                                                                                                                             | 41             | 20     |         | 18"                   |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                | 17             | 20     |         |                       |                                                                                           |      |
| 60                           |              |                                                    |       |                                                                                                                                                                |                |        |         |                       | Bottom of Hole 55 ft.                                                                     |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
| 65                           |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
| 70                           |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
| 75                           |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
| 80                           |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |
|                              |              |                                                    |       |                                                                                                                                                                |                |        |         |                       |                                                                                           |      |

|                                       |              |
|---------------------------------------|--------------|
| Nominal I.D. of Casing                | 4 in.        |
| Nominal I.D. of Split Barrel Sampler  | 1 ½ in.      |
| Weight/type of Hammer on Drive Pipe   | 300 lb.      |
| Weight/type of Hammer on Split Barrel | 140 lb. Auto |
| Drop of Hammer on Drive Pipe          | 24 in.       |
| Drop of Hammer on Split Barrel        | 30 in.       |
| Core Size                             | NA           |

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                 |                          | BORING NO. B-2          |                                                     |         |                                                          |                                     |      |
|------------------------------|-----------------|------------------------------------------------------|-------|-----------------|--------------------------|-------------------------|-----------------------------------------------------|---------|----------------------------------------------------------|-------------------------------------|------|
| SECTION:                     |                 | 2 <sup>nd</sup> St. & Sinatra Dr., Hoboken, NJ       |       |                 |                          | FIELD BORING NO.        |                                                     |         |                                                          |                                     |      |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE: |                          | GROUND ELEVATION: ±13.0 |                                                     |         |                                                          |                                     |      |
| BORING BY: Craig Test Boring |                 |                                                      |       |                 | DATE STARTED: 9-2-2015   |                         | GROUND WATER ELEVATION                              |         |                                                          |                                     |      |
| INSPECTOR: C. Baldwin        |                 |                                                      |       |                 | DATE COMPLETED: 9-2-2015 |                         | 0 Hr. _____ Date: _____<br>24 Hr. _____ Date: _____ |         |                                                          |                                     |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                 |                          | Blows on Spoon          |                                                     |         | REC.<br>(in)                                             | SOIL DESCRIPTION AND STRATIFICATION | (ft) |
|                              |                 |                                                      | 0 / 6 | 6 / 12          | 12 / 18                  | 0 / 6                   | 6 / 12                                              | 12 / 18 |                                                          |                                     |      |
| 5                            | Casing          | S-1                                                  | 0     | 2               | 10                       | 9                       |                                                     | 15      | Brown c-f SAND, some Silt, little f Gravel; Fill         |                                     |      |
|                              | ↓               |                                                      |       |                 | 6                        | 6                       |                                                     |         |                                                          |                                     |      |
|                              |                 | S-2                                                  | 2     | 4               | 4                        | 4                       |                                                     | 12      |                                                          | SAME                                |      |
|                              |                 |                                                      |       |                 | 4                        | 5                       |                                                     |         |                                                          |                                     |      |
|                              |                 | S-3                                                  | 4     | 5.5             | 2                        | 5                       |                                                     |         | Obstruction @5.5' blue styrofoam on top of concrete      |                                     |      |
|                              |                 |                                                      |       |                 | 3                        |                         |                                                     |         |                                                          | 5.5                                 |      |
| 10                           |                 |                                                      |       |                 |                          |                         |                                                     |         | Bottom of Boring @5.5'                                   |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
| 15                           |                 |                                                      |       |                 |                          |                         |                                                     |         | Note:                                                    |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
| 20                           |                 |                                                      |       |                 |                          |                         |                                                     |         | Obstruction @5.5' in second bore hole drilled 8 ft. West |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
| 25                           |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
| 30                           |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
| 35                           |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
| 40                           |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |
|                              |                 |                                                      |       |                 |                          |                         |                                                     |         |                                                          |                                     |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
 Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|------------------------------|-----------------|------------------------------------------------------|-------|-------------------------------------------------------|----------------|--------|---------|-------------------------|----------------------------------------------------|------|------|
| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                                                       |                |        |         | BORING NO. B-3          |                                                    |      |      |
| SECTION:                     |                 | 3 <sup>rd</sup> St. & Sinatra Dr., Hoboken, NJ       |       |                                                       |                |        |         | FIELD BORING NO.        |                                                    |      |      |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE:                                       |                |        |         | GROUND ELEVATION: ±13.0 |                                                    |      |      |
| BORING BY: Craig Test Boring |                 | DATE STARTED: 9-2-2015                               |       | GROUND WATER ELEVATION<br>0 Hr. Date:<br>24 Hr. Date: |                |        |         |                         |                                                    |      |      |
| INSPECTOR: C. Baldwin        |                 | DATE COMPLETED: 9-2-2015                             |       |                                                       |                |        |         |                         |                                                    |      |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                                                       | Blows on Spoon |        |         | REC.<br>(in)            | SOIL DESCRIPTION AND STRATIFICATION                | (ft) |      |
|                              |                 |                                                      |       |                                                       | 0 / 6          | 6 / 12 | 12 / 18 |                         |                                                    |      |      |
| 5                            | Casing          | S-1                                                  | 0     | 2                                                     | 8              | 8      |         | 15                      | Dark Brown c-f SAND, some Silt, trace f Gravel     |      |      |
|                              | ↓               |                                                      |       |                                                       | 10             | 9      |         |                         |                                                    |      |      |
|                              |                 | S-2                                                  | 2     | 4                                                     | 6              | 5      |         | 20                      |                                                    | SAME |      |
|                              |                 |                                                      |       |                                                       | 8              | 7      |         |                         |                                                    |      |      |
|                              |                 | S-3                                                  | 4     | 5.5                                                   | 5              | 9      |         | 15                      |                                                    |      | Same |
| 10                           |                 |                                                      |       |                                                       | 9              | 50/0"  |         |                         | Obstruction @5.5' rubber lining on top of concrete | 5.5  |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         | Bottom of Boring @5.5'                             |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
| 15                           |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
| 20                           |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
| 25                           |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
| 30                           |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
| 35                           |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
| 40                           |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |
|                              |                 |                                                      |       |                                                       |                |        |         |                         |                                                    |      |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 ¼ in.           |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

|                              |  |                                                      |  |                 |                          |                         |                             |  |  |
|------------------------------|--|------------------------------------------------------|--|-----------------|--------------------------|-------------------------|-----------------------------|--|--|
| ROUTE                        |  | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |  |                 |                          | BORING NO. B-4          |                             |  |  |
| SECTION:                     |  | 4 <sup>th</sup> St. & Sinatra Dr., Hoboken, NJ       |  |                 |                          | FIELD BORING NO.        |                             |  |  |
| STATION:                     |  | OFFSET:                                              |  | REFERENCE LINE: |                          | GROUND ELEVATION: ±11.0 |                             |  |  |
| BORING BY: Craig Test Boring |  |                                                      |  |                 | DATE STARTED: 9-2-2015   |                         | GROUND WATER ELEVATION      |  |  |
| INSPECTOR: C. Baldwin        |  |                                                      |  |                 | DATE COMPLETED: 9-2-2015 |                         | 0 Hr. Date:<br>24 Hr. Date: |  |  |

| DEPTH<br>(ft) | CASING<br>BLOWS | SAMPLE<br>NO. | DEPTH |     |  | Blows on Spoon |        |         | REC.<br>(in) | SOIL DESCRIPTION AND STRATIFICATION | (ft) |
|---------------|-----------------|---------------|-------|-----|--|----------------|--------|---------|--------------|-------------------------------------|------|
|               |                 |               |       |     |  | 0 / 6          | 6 / 12 | 12 / 18 |              |                                     |      |
| 5             | Casing          | S-1           | 0     | 2   |  | 4              | 8      |         | 10           | Brown c-f SAND, some Silt           |      |
|               | ↓               |               |       |     |  | 8              | 5      |         |              |                                     |      |
|               |                 | S-2           | 2     | 4   |  | 4              | 3      |         | 3            | SAME                                |      |
|               |                 |               |       |     |  | 3              | 3      |         |              |                                     |      |
|               |                 | S-3           | 4     | 5.3 |  | 0?             |        |         | 3            | Same; Obstruction @5.3'             | 5.3  |
|               |                 |               |       |     |  |                |        |         |              | Bottom of Boring @5.3'              |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
| 10            |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
| 15            |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
| 20            |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
| 25            |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
| 30            |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
| 35            |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
|               |                 |               |       |     |  |                |        |         |              |                                     |      |
| 40            |                 |               |       |     |  |                |        |         |              |                                     |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
 Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                 |                |        |         | BORING NO. B-4A          |                                                                                               |                                                             |      |
|------------------------------|-----------------|------------------------------------------------------|-------|-----------------|----------------|--------|---------|--------------------------|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------|------|
| SECTION:                     |                 | 4 <sup>th</sup> St. & Sinatra Dr., Hoboken, NJ       |       |                 |                |        |         | FIELD BORING NO.         |                                                                                               |                                                             |      |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE: |                |        |         | GROUND ELEVATION: ±12.0  |                                                                                               |                                                             |      |
| BORING BY: Craig Test Boring |                 |                                                      |       |                 |                |        |         | DATE STARTED: 9-2-2015   |                                                                                               | GROUND WATER ELEVATION<br>0 Hr.<br>24 Hr.<br>Date:<br>Date: |      |
| INSPECTOR: C. Baldwin        |                 |                                                      |       |                 |                |        |         | DATE COMPLETED: 9-2-2015 |                                                                                               |                                                             |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                 | Blows on Spoon |        |         | REC.<br>(in)             | SOIL DESCRIPTION AND STRATIFICATION                                                           | (ft)                                                        |      |
|                              |                 |                                                      |       |                 | 0 / 6          | 6 / 12 | 12 / 18 |                          |                                                                                               |                                                             |      |
| 5                            | Casing          | S-1                                                  | 0     | 2               | 4              | 6      |         | 18                       | Brown c-f SAND, some Silt, little f Gravel                                                    |                                                             |      |
|                              | ↓               |                                                      |       |                 | 6              | 12     |         |                          |                                                                                               |                                                             |      |
|                              |                 | S-2                                                  | 2     | 4               | 7              | 18     |         | 12                       |                                                                                               | Dark brown c-f SAND, some Silt, little m-f Gravel           |      |
|                              |                 |                                                      |       |                 | 47             | 23     |         |                          |                                                                                               |                                                             |      |
|                              |                 | S-3                                                  | 4     | 6               | 52             | 65     |         | 6                        |                                                                                               |                                                             | SAME |
| 10                           |                 |                                                      |       |                 | 42             | 20     |         |                          | SAME                                                                                          |                                                             |      |
|                              |                 | S-4                                                  | 6     | 8               | 12             | 9      |         | 3                        |                                                                                               | Brown c-f SAND, some Silt                                   |      |
|                              |                 |                                                      |       |                 | 7              | 5      |         |                          |                                                                                               |                                                             |      |
|                              |                 | S-5                                                  | 8     | 10              | 3              | 3      |         | 4                        |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 | 2              | 2      |         |                          |                                                                                               |                                                             |      |
| 15                           |                 | S-6                                                  | 10    | 12              | 2              | 2      |         | NR                       | Brown m-f GRAVEL, some(+) c-f Sand, trace Silt; glass, brick fragments, used 3" spoon sampler |                                                             |      |
|                              |                 |                                                      |       |                 | 2              | 2      |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
| 20                           |                 | S-7                                                  | 15    | 17              | WoH            | WoH    |         | NR                       | SAME; used 3" spoon sampler                                                                   |                                                             |      |
|                              |                 |                                                      |       |                 | WoH            | WoH    |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
| 25                           |                 | S-8                                                  | 20    | 22              | 1              | 2      |         | NR                       | SAME; used 3" spoon sampler                                                                   |                                                             |      |
|                              |                 |                                                      |       |                 | 1              | 1      |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
| 30                           |                 | S-9                                                  | 25    | 27              | 1              | WoH    |         | 14                       | Gray CLAY, trace(-) f Sand; trace shell, wood fragments                                       |                                                             |      |
|                              |                 |                                                      |       |                 | WoH            | WoR    |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
| 35                           |                 | S-10                                                 | 30    | 32              | WoH            | WoH    |         | 15                       | Gray Clayey SILT, and f Sand                                                                  |                                                             |      |
|                              |                 |                                                      |       |                 | 6              | 7      |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
| 40                           |                 | S-11                                                 | 35    | 37              | 7              | 7      |         | 14                       | Light brown Clayey SILT, little(+) f Sand                                                     |                                                             |      |
|                              |                 |                                                      |       |                 | 6              | 7      |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |
|                              |                 |                                                      |       |                 |                |        |         |                          |                                                                                               |                                                             |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

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|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|------------------------------|-----------------|------------------------------------------------------|-------|--------------------------|----------------|-------------------------------------------------------|---------|-------------------------|------------------------------------------------------|------|
| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                          |                |                                                       |         | BORING NO. B-4A         |                                                      |      |
| SECTION:                     |                 | 4 <sup>th</sup> St. & Sinatra Dr., Hoboken, NJ       |       |                          |                |                                                       |         | FIELD BORING NO.        |                                                      |      |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE:          |                |                                                       |         | GROUND ELEVATION: ±12.0 |                                                      |      |
| BORING BY: Craig Test Boring |                 |                                                      |       | DATE STARTED: 9-2-2015   |                | GROUND WATER ELEVATION<br>0 Hr. Date:<br>24 Hr. Date: |         |                         |                                                      |      |
| INSPECTOR: C. Baldwin        |                 |                                                      |       | DATE COMPLETED: 9-2-2015 |                |                                                       |         |                         |                                                      |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                          | Blows on Spoon |                                                       |         | REC.<br>(in)            | SOIL DESCRIPTION AND STRATIFICATION                  | (ft) |
|                              |                 |                                                      |       |                          | 0 / 6          | 6 / 12                                                | 12 / 18 |                         |                                                      |      |
| 45                           |                 | S-12                                                 | 40    | 42                       | 15             | 21                                                    |         | 12                      | Light brown c-f SAND, some(+) Silt, trace f Gravel   |      |
|                              |                 |                                                      |       |                          | 18             | 37                                                    |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
| 50                           |                 | S-13                                                 | 45    | 47                       | 19             | 21                                                    |         | 14                      | Light brown c-f SAND, little Silt, little m-f Gravel |      |
|                              |                 |                                                      |       |                          | 36             | 41                                                    |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
| 55                           |                 | S-14                                                 | 50    | 51.8                     | 14             | 18                                                    |         | 10                      | SAME                                                 |      |
|                              |                 |                                                      |       |                          | 11             | 50/3"                                                 |         |                         |                                                      | 51.8 |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
| 60                           |                 |                                                      |       |                          |                |                                                       |         |                         | Bottom of Boring @51.8'                              |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
| 65                           |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
| 70                           |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
| 75                           |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
| 80                           |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |
|                              |                 |                                                      |       |                          |                |                                                       |         |                         |                                                      |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
 Inferred Change in Strata -----

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| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                 |                |                                          |         |                         | BORING NO. B-5                                          |                                           |      |
|------------------------------|-----------------|------------------------------------------------------|-------|-----------------|----------------|------------------------------------------|---------|-------------------------|---------------------------------------------------------|-------------------------------------------|------|
| SECTION:                     |                 | 11 <sup>th</sup> St. & Sinatra Dr. N, Hoboken, NJ    |       |                 |                |                                          |         |                         | FIELD BORING NO.                                        |                                           |      |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE: |                |                                          |         | GROUND ELEVATION: ±11.0 |                                                         |                                           |      |
| BORING BY: Craig Test Boring |                 | DATE STARTED: 9-4-2015                               |       | 0 Hr.<br>24 Hr. |                | GROUND WATER ELEVATION<br>Date:<br>Date: |         |                         |                                                         |                                           |      |
| INSPECTOR: C. Baldwin        |                 | DATE COMPLETED: 9-4-2015                             |       |                 |                |                                          |         |                         |                                                         |                                           |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                 | Blows on Spoon |                                          |         | REC.<br>(in)            | SOIL DESCRIPTION AND STRATIFICATION                     | (ft)                                      |      |
|                              |                 |                                                      |       |                 | 0 / 6          | 6 / 12                                   | 12 / 18 |                         |                                                         |                                           |      |
| 5                            | Casing          | S-1                                                  | 0     | 2               |                | 42                                       |         | 15                      | Brown c-f SAND, little Silt, trace f Gravel; 6" Asphalt |                                           |      |
|                              | ↓               |                                                      |       |                 | 25             | 20                                       |         |                         |                                                         |                                           |      |
|                              |                 | S-2                                                  | 2     | 4               | 30             | 17                                       |         | 12                      |                                                         | SAME                                      |      |
|                              |                 |                                                      |       |                 | 20             | 21                                       |         |                         |                                                         |                                           |      |
|                              |                 | S-3                                                  | 4     | 6               | 24             | 27                                       |         | 15                      |                                                         | SAME                                      |      |
| 10                           |                 |                                                      |       |                 | 28             | 25                                       |         |                         | Brown c-f SAND, some Silt                               |                                           |      |
|                              |                 | S-4                                                  | 6     | 8               | 7              | 13                                       |         | 6                       |                                                         |                                           |      |
|                              |                 |                                                      |       |                 | 8              | 10                                       |         |                         |                                                         |                                           |      |
|                              |                 | S-5                                                  | 8     | 10              | 5              | 3                                        |         | 8                       |                                                         | Brown and gray Clayey Silt, little f Sand |      |
|                              |                 |                                                      |       |                 | 2              | 2                                        |         |                         |                                                         |                                           |      |
| 15                           |                 | S-6                                                  | 10    | 11.3            | 3              | 4                                        |         | 12                      | Wood                                                    |                                           |      |
|                              |                 |                                                      |       |                 | 100/3"         |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
| 20                           |                 | S-7                                                  | 15    | 17              | 1              | 2                                        |         | 8                       | Black c(+)-f SAND, some m-f Gravel, trace Silt          |                                           |      |
|                              |                 |                                                      |       |                 | 4              | 5                                        |         |                         |                                                         |                                           | 18   |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
| 25                           |                 | S-8                                                  | 20    | 22              | 1              | WoH                                      |         | 20                      | Dark gray Clayey Silt, some f Sand                      |                                           |      |
|                              |                 |                                                      |       |                 | WoH            | 2                                        |         |                         |                                                         |                                           | 23   |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
| 30                           | Mud             | S-9                                                  | 25    | 27              | 2              | 3                                        |         | 4                       | Brown c-f SAND, trace Silt, trace f Gravel              |                                           |      |
|                              | ↓               |                                                      |       |                 | 6              | 12                                       |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
| 35                           |                 | S-10                                                 | 30    | 32              | 20             | 33                                       |         | 10                      | Brown c-f SAND, little m-f Gravel, trace(+) Silt        |                                           |      |
|                              |                 |                                                      |       |                 | 38             | 30                                       |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 | S11                                                  | 33.5  | 33.5            | ?              |                                          |         |                         |                                                         | Hard drilling @33.5'                      | 33.5 |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         | Bottom of Boring @33.5'                   |      |
| 40                           |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |
|                              |                 |                                                      |       |                 |                |                                          |         |                         |                                                         |                                           |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 ¼ in.           |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata

Inferred Change in Strata

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| ROUTE                        |  | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |  |                                 |  |  |  | BORING NO. B-6         |  |
|------------------------------|--|------------------------------------------------------|--|---------------------------------|--|--|--|------------------------|--|
| SECTION:                     |  | 12 <sup>th</sup> St. & Sinatra Dr. N, Hoboken, NJ    |  |                                 |  |  |  | FIELD BORING NO.       |  |
| STATION:                     |  | OFFSET:                                              |  | REFERENCE LINE:                 |  |  |  | GROUND ELEVATION: ±8.0 |  |
| BORING BY: Craig Test Boring |  | DATE STARTED: 9-3-2015                               |  | GROUND WATER ELEVATION<br>0 Hr. |  |  |  |                        |  |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 ¼ in.           |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|------------------------------|-----------------|------------------------------------------------------|-------|-----------------|----------------|--------|---------|------------------------|-----------------------------------------------------------------------|-------------------------|-------------------------------------------------------------------------------|--|
| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                 |                |        |         | BORING NO. B-6         |                                                                       |                         |                                                                               |  |
| SECTION:                     |                 | 12 <sup>th</sup> St. & Sinatra Dr. N, Hoboken, NJ    |       |                 |                |        |         | FIELD BORING NO.       |                                                                       |                         |                                                                               |  |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE: |                |        |         | GROUND ELEVATION: ±8.0 |                                                                       |                         |                                                                               |  |
| BORING BY: Craig Test Boring |                 |                                                      |       |                 |                |        |         |                        | DATE STARTED: 9-3-2015                                                |                         | GROUND WATER ELEVATION<br>0 Hr. _____ Date: _____<br>24 Hr. _____ Date: _____ |  |
| INSPECTOR: C. Baldwin        |                 |                                                      |       |                 |                |        |         |                        | DATE COMPLETED: 9-3-2015                                              |                         |                                                                               |  |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                 | Blows on Spoon |        |         | REC.<br>(in)           | SOIL DESCRIPTION AND STRATIFICATION                                   | (ft)                    |                                                                               |  |
|                              |                 |                                                      |       |                 | 0 / 6          | 6 / 12 | 12 / 18 |                        |                                                                       |                         |                                                                               |  |
| 45                           |                 | S-12                                                 | 40    | 42              | 10             | 17     |         | 12                     | SAME                                                                  | Drill chatter @44.0'    |                                                                               |  |
|                              |                 |                                                      |       |                 | 19             | 17     |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
| 50                           |                 | S-13                                                 | 45    | 45.8            | 25             | 50/3"  |         | 7                      | Brown c-f SAND, little m-f Gravel, trace Silt<br>Hard drilling @46.0' |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
| 55                           |                 | S-14                                                 | 50    | 51              | 55             | 46     |         | 10                     | Brown c-f SAND, some(-) m-f Gravel, trace Silt                        |                         |                                                                               |  |
|                              |                 |                                                      |       |                 | 50/0"          |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
| 60                           |                 | S15                                                  | 55    | 55.3            | 100/3"         |        |         | 3                      | SAME                                                                  | Bottom of Boring @55.3' |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
| 65                           |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
| 70                           |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
| 75                           |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
| 80                           |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |
|                              |                 |                                                      |       |                 |                |        |         |                        |                                                                       |                         |                                                                               |  |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Inferred Change in Strata -----

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| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken        |       |                 |                |        |         | BORING NO. B-10          |                                                                                                                                    |                                                             |  |  |
|------------------------------|-----------------|-------------------------------------------------------------|-------|-----------------|----------------|--------|---------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|--|--|
| SECTION:                     |                 | Promenade Northwest of Tea Building at 15 <sup>th</sup> St. |       |                 |                |        |         | FIELD BORING NO.         |                                                                                                                                    |                                                             |  |  |
| STATION:                     |                 | OFFSET:                                                     |       | REFERENCE LINE: |                |        |         | GROUND ELEVATION: ±7.0   |                                                                                                                                    |                                                             |  |  |
| BORING BY: Craig Test Boring |                 |                                                             |       |                 |                |        |         | DATE STARTED: 9-8-2015   |                                                                                                                                    | GROUND WATER ELEVATION<br>0 Hr.<br>24 Hr.<br>Date:<br>Date: |  |  |
| INSPECTOR: C. Baldwin        |                 |                                                             |       |                 |                |        |         | DATE COMPLETED: 9-8-2015 |                                                                                                                                    |                                                             |  |  |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                               | DEPTH |                 | Blows on Spoon |        |         | REC.<br>(in)             | SOIL DESCRIPTION AND STRATIFICATION                                                                                                | (ft)                                                        |  |  |
|                              |                 |                                                             |       |                 | 0 / 6          | 6 / 12 | 12 / 18 |                          |                                                                                                                                    |                                                             |  |  |
| 5                            | Casing          | S-1                                                         | 0     | 2               | 5              | 7      |         | 20"                      | Brown m-f SAND, little Silt<br><br>Tan c-f SAND, some Silt ; <b>PVC</b> in spoon<br><br>Brown c-f SAND, and Silt, trace m-f Gravel |                                                             |  |  |
|                              | ↓               |                                                             |       |                 | 6              | 6      |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 | S-2                                                         | 2     | 4               | 10             | 7      |         | 12"                      |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 | 5              | 4      |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 | S-3                                                         | 4     | 5.3             | 2              | 2      |         | 8"                       |                                                                                                                                    |                                                             |  |  |
| 10                           |                 |                                                             |       |                 | 1              | 1      |         |                          |                                                                                                                                    | 6 ft.                                                       |  |  |
|                              |                 | S-4                                                         | 6     | 8               | 2              | 1      |         | 6"                       | Brown Clayey SILT, and m-f Sand<br><br>Brown c-f SAND, little Silt ; <b>brick</b> in spoon                                         | 8 ft.                                                       |  |  |
|                              |                 |                                                             |       |                 | 2              | 1      |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 | S-5                                                         | 8     | 10              | 2              | 1      |         | 4"                       |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 | 1              | 2      |         |                          |                                                                                                                                    |                                                             |  |  |
| 15                           |                 | S-6                                                         | 10    | 12              | 1              | 1      |         | 6"                       |                                                                                                                                    | SAME                                                        |  |  |
|                              |                 |                                                             |       |                 | 2              | 1      |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
| 20                           |                 | S-7                                                         | 15    | 17              | 2              | 3      |         | 4"                       | Black c-f SAND, trace Silt ; <b>Petroleum odor and visible sheen</b>                                                               |                                                             |  |  |
|                              |                 |                                                             |       |                 | 2              | 3      |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
| 25                           |                 | S-8                                                         | 20    | 22              | 2              | 1      |         | 15"                      | SAME                                                                                                                               |                                                             |  |  |
|                              |                 |                                                             |       |                 | 1              | 1      |         |                          |                                                                                                                                    | 23 ft.                                                      |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
| 30                           | Mud             |                                                             |       |                 |                |        |         |                          | Gray CLAY & SILT                                                                                                                   |                                                             |  |  |
|                              | ↓               | S-9                                                         | 25    | 27              | WoH            | WoH    |         | 22"                      |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 | WoH            | WoH    |         |                          |                                                                                                                                    | 28 ft.                                                      |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
| 35                           |                 | S-10                                                        | 30    | 32              | 4              | 11     |         | 4"                       | Brown c-f SAND, and Silt, little m-f Gravel                                                                                        |                                                             |  |  |
|                              |                 |                                                             |       |                 | 15             | 22     |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
| 40                           |                 | S-11                                                        | 35    | 37              | 23             | 32     |         | 22"                      | Brown, light gray c-f SAND, little m-f Gravel, trace Silt ;<br>decomposed rock                                                     |                                                             |  |  |
|                              |                 |                                                             |       |                 | 75             | 77     |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |
|                              |                 |                                                             |       |                 |                |        |         |                          |                                                                                                                                    |                                                             |  |  |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 ¼ in.           |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken        |       |                 |                          | BORING NO. B-10        |                                                     |         |              |                                     |      |
|------------------------------|-----------------|-------------------------------------------------------------|-------|-----------------|--------------------------|------------------------|-----------------------------------------------------|---------|--------------|-------------------------------------|------|
| SECTION:                     |                 | Promenade Northwest of Tea Building at 15 <sup>th</sup> St. |       |                 |                          | FIELD BORING NO.       |                                                     |         |              |                                     |      |
| STATION:                     |                 | OFFSET:                                                     |       | REFERENCE LINE: |                          | GROUND ELEVATION: ±7.0 |                                                     |         |              |                                     |      |
| BORING BY: Craig Test Boring |                 |                                                             |       |                 | DATE STARTED: 9-8-2015   |                        | GROUND WATER ELEVATION                              |         |              |                                     |      |
| INSPECTOR: C. Baldwin        |                 |                                                             |       |                 | DATE COMPLETED: 9-8-2015 |                        | 0 Hr. _____ Date: _____<br>24 Hr. _____ Date: _____ |         |              |                                     |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                               | DEPTH |                 |                          | Blows on Spoon         |                                                     |         | REC.<br>(in) | SOIL DESCRIPTION AND STRATIFICATION | (ft) |
|                              |                 |                                                             |       |                 |                          | 0 / 6                  | 6 / 12                                              | 12 / 18 |              |                                     |      |
| 45                           |                 | S-12                                                        | 40    | 40.17           | 100/2                    |                        |                                                     |         | 2"           | SAME                                |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
| 50                           |                 | S-                                                          | 45    | 45              | 100/0                    |                        |                                                     |         | NR           | Bottom of hole at 45.0 ft           |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
| 55                           |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
| 60                           |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
| 65                           |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
| 70                           |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
| 75                           |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
| 80                           |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |
|                              |                 |                                                             |       |                 |                          |                        |                                                     |         |              |                                     |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
 Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted

|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|------------------------------|-----------------|------------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------|----------------|--------|---------|------------------------|----------------------------------------------------------------------------------------------------|------|
| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                                                                                                                     |                |        |         | BORING NO. GW-1        |                                                                                                    |      |
| SECTION:                     |                 | Harrison St. & Observer Hwy., Hoboken, NJ            |       |                                                                                                                     |                |        |         | FIELD BORING NO.       |                                                                                                    |      |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE:                                                                                                     |                |        |         | GROUND ELEVATION: ±4.0 |                                                                                                    |      |
| BORING BY: Craig Test Boring |                 | DATE STARTED: 8-27-2015                              |       | GROUND WATER ELEVATION<br>0 Hr. Depth 7.0 ft. (EL-3.0 ft.) Date: 8-27-2015<br>24 Hr. Date:<br>20 ft. P.P. installed |                |        |         |                        |                                                                                                    |      |
| INSPECTOR: C. Baldwin        |                 | DATE COMPLETED: 8-27-2015                            |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                                                                                                                     | Blows on Spoon |        |         | REC.<br>(in)           | SOIL DESCRIPTION AND STRATIFICATION                                                                | (ft) |
|                              |                 |                                                      |       |                                                                                                                     | 0 / 6          | 6 / 12 | 12 / 18 |                        |                                                                                                    |      |
| 5                            | Casing          | S-1                                                  | 0     | 2                                                                                                                   |                | 6      |         | 12                     | Gray and Black c-f SAND, little Silt, trace m-f Gravel; 6" Asphalt<br>SAME<br>SAME                 |      |
|                              | ↓               |                                                      |       |                                                                                                                     | 6              | 11     |         |                        |                                                                                                    |      |
|                              |                 | S-2                                                  | 2     | 4                                                                                                                   | 3              | 6      |         | 12                     |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     | 7              | 3      |         |                        |                                                                                                    |      |
|                              |                 | S-3                                                  | 4     | 6                                                                                                                   | 2              | 1      |         | 4                      |                                                                                                    |      |
| 10                           |                 |                                                      |       |                                                                                                                     | 2              | 1      |         |                        | Brown and black c-f SAND, little m-f(+) Gravel, little Silt<br>Black Clayey SILT, some m-f(+) Sand |      |
|                              |                 | S-4                                                  | 6     | 8                                                                                                                   | 1              | 2      |         | 14                     |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     | 3              | 1      |         |                        |                                                                                                    | 8    |
|                              |                 | S-5                                                  | 8     | 10                                                                                                                  | 1              | 1      |         | 12                     |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     | 1              | WoH    |         |                        |                                                                                                    |      |
| 15                           |                 | S-6                                                  | 10    | 12                                                                                                                  | WoH            | WoH    |         | 16                     | SAME<br>Black Silty CLAY, trace f Sand<br>SAME; used 3" Spoon Sampler                              |      |
|                              |                 |                                                      |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                                                    |      |
|                              |                 | S-7                                                  | 12    | 14                                                                                                                  | WoH            | WoH    |         | 20                     |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                                                    |      |
|                              |                 | S-8                                                  | 14    | 16                                                                                                                  | WoH            | WoH    |         | NR                     |                                                                                                    |      |
| 20                           |                 |                                                      |       |                                                                                                                     | WoH            | WoH    |         |                        | SAME<br>SAME<br>SAME                                                                               |      |
|                              |                 | S-9                                                  | 16    | 18                                                                                                                  | WoH            | WoH    |         | 10                     |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                                                    |      |
|                              |                 | S-10                                                 | 18    | 20                                                                                                                  | WoH            | WoH    |         | 8                      |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                                                    | 20   |
| 25                           |                 |                                                      |       |                                                                                                                     |                |        |         |                        | Bottom of Boring @20.0'                                                                            |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
| 30                           |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
| 35                           |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
| 40                           |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |
|                              |                 |                                                      |       |                                                                                                                     |                |        |         |                        |                                                                                                    |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 6 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                                                                                                                               |                |        |         | BORING NO. GW-3        |                                       |                                |  |
|------------------------------|-----------------|------------------------------------------------------|-------|-------------------------------------------------------------------------------------------------------------------------------|----------------|--------|---------|------------------------|---------------------------------------|--------------------------------|--|
| SECTION:                     |                 | Garden St. & 4 <sup>th</sup> St., Hoboken, NJ        |       |                                                                                                                               |                |        |         | FIELD BORING NO.       |                                       |                                |  |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE:                                                                                                               |                |        |         | GROUND ELEVATION: ±8.0 |                                       |                                |  |
| BORING BY: Craig Test Boring |                 | DATE STARTED: 8-28-2015                              |       | GROUND WATER ELEVATION<br>0 Hr. Depth 6.0 ft. (EL+2.0 ft.)      Date: 8-28-2015<br>24 Hr.      Date:<br>20 ft. P.P. installed |                |        |         |                        |                                       |                                |  |
| INSPECTOR: C. Baldwin        |                 | DATE COMPLETED: 8-28-2015                            |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                                                                                                                               | Blows on Spoon |        |         | REC.<br>(in)           | SOIL DESCRIPTION AND STRATIFICATION   | (ft)                           |  |
|                              |                 |                                                      |       |                                                                                                                               | 0 / 6          | 6 / 12 | 12 / 18 |                        |                                       |                                |  |
| 5                            | Casing          | S-1                                                  | 0     | 2                                                                                                                             |                | 11     |         | 6                      | Brown c-f SAND, some Silt; 6" Asphalt |                                |  |
|                              | ↓               |                                                      |       |                                                                                                                               | 8              | 9      |         |                        |                                       |                                |  |
|                              |                 | S-2                                                  | 2     | 4                                                                                                                             | 9              | 15     |         | 12                     |                                       | Brown c-f(+) SAND, little Silt |  |
|                              |                 |                                                      |       |                                                                                                                               | 12             | 9      |         |                        |                                       |                                |  |
|                              |                 | S-3                                                  | 4     | 6                                                                                                                             | 3              | 3      |         | 7                      |                                       | Gray m-f(+) SAND, some Silt    |  |
| 10                           |                 |                                                      |       |                                                                                                                               | 2              | 3      |         |                        | Gray m-f(+) SAND, little Silt         |                                |  |
|                              |                 | S-4                                                  | 6     | 8                                                                                                                             | 1              | 2      |         | 15                     |                                       | Gray m-f(+) SAND, little Silt  |  |
|                              |                 |                                                      |       |                                                                                                                               | 2              | 2      |         |                        |                                       |                                |  |
|                              |                 | S-5                                                  | 8     | 10                                                                                                                            | 3              | 2      |         | 10                     |                                       | SAME                           |  |
|                              |                 |                                                      |       |                                                                                                                               | 3              | 3      |         |                        |                                       |                                |  |
| 15                           |                 | S-6                                                  | 10    | 12                                                                                                                            | 2              | 1      |         | 6                      | Gray f SAND, little(-) Silt           |                                |  |
|                              |                 |                                                      |       |                                                                                                                               | 2              | 1      |         |                        |                                       |                                |  |
|                              |                 | S-7                                                  | 12    | 14                                                                                                                            | 1              | 2      |         | 12                     |                                       | Gray f SAND, little(+) Silt    |  |
|                              |                 |                                                      |       |                                                                                                                               | 2              | 2      |         |                        |                                       |                                |  |
|                              |                 | S-8                                                  | 14    | 16                                                                                                                            | 1              | 2      |         | 8                      |                                       | SAME                           |  |
| 20                           |                 |                                                      |       |                                                                                                                               | 1              | 2      |         |                        | SAME                                  |                                |  |
|                              |                 | S-9                                                  | 16    | 18                                                                                                                            | 1              | 3      |         | 12                     |                                       | SAME                           |  |
|                              |                 |                                                      |       |                                                                                                                               | 2              | 3      |         |                        |                                       |                                |  |
|                              |                 | S-10                                                 | 18    | 20                                                                                                                            | 2              | 3      |         | 14                     |                                       | SAME                           |  |
|                              |                 |                                                      |       |                                                                                                                               | 2              | 2      |         |                        |                                       |                                |  |
| 25                           |                 |                                                      |       |                                                                                                                               |                |        |         |                        | Bottom of Boring @20.0'               | 20                             |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
| 30                           |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
| 35                           |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
| 40                           |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |
|                              |                 |                                                      |       |                                                                                                                               |                |        |         |                        |                                       |                                |  |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 6 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

The subsurface information shown hereon was obtained for the Owner's design and estimate purposes. It is made available to authorized users only that they may have access to the same information available to the Owner. It is presented in good faith, but is not intended as a substitute for investigations, interpretation or judgment of such authorized users.

Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|------------------------------|-----------------|------------------------------------------------------|-------|--------------------------------------------------------------------------------------|----------------|--------|---------|------------------------|---------------------------------------------------------------------|------|----|
| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                                                                                      |                |        |         | BORING NO. GW-4        |                                                                     |      |    |
| SECTION:                     |                 | Harrison St., Hoboken, NJ                            |       |                                                                                      |                |        |         | FIELD BORING NO.       |                                                                     |      |    |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE:                                                                      |                |        |         | GROUND ELEVATION: ±6.0 |                                                                     |      |    |
| BORING BY: Craig Test Boring |                 | DATE STARTED: 8-28-2015                              |       | GROUND WATER ELEVATION<br>0 Hr.<br>24 Hr.<br>20 ft. P.P. installed<br>Date:<br>Date: |                |        |         |                        |                                                                     |      |    |
| INSPECTOR: C. Baldwin        |                 | DATE COMPLETED: 8-28-2015                            |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                                                                                      | Blows on Spoon |        |         | REC.<br>(in)           | SOIL DESCRIPTION AND STRATIFICATION                                 | (ft) |    |
|                              |                 |                                                      |       |                                                                                      | 0 / 6          | 6 / 12 | 12 / 18 |                        |                                                                     |      |    |
| 5                            | Casing          | S-1                                                  | 0     | 2                                                                                    |                | 2      |         | 6                      | Black c-f SAND, little Silt, trace f Gravel; Fill                   |      |    |
|                              | ↓               |                                                      |       |                                                                                      | 3              | 3      |         |                        |                                                                     |      |    |
|                              |                 | S-2                                                  | 2     | 4                                                                                    | 3              | 3      |         | 8                      |                                                                     | SAME |    |
|                              |                 |                                                      |       |                                                                                      | 3              | 2      |         |                        |                                                                     |      |    |
|                              |                 | S-3                                                  | 4     | 6                                                                                    | 1              | WoH    |         | 8                      |                                                                     | SAME |    |
| 10                           |                 |                                                      |       |                                                                                      | 1              | WoH    |         |                        | SAME                                                                |      |    |
|                              |                 | S-4                                                  | 6     | 8                                                                                    | 1              | 2      |         | 3                      |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      | 2              | 3      |         |                        |                                                                     |      |    |
|                              |                 | S-5                                                  | 8     | 10                                                                                   | 14             | 11     |         | 8                      |                                                                     | SAME |    |
|                              |                 |                                                      |       |                                                                                      | 1              | 2      |         |                        |                                                                     |      | 10 |
| 15                           |                 | S-6                                                  | 10    | 12                                                                                   | 1              | WoH    |         | NR                     | No recovery after 3" Spoon Sampler tried.                           |      |    |
|                              |                 |                                                      |       |                                                                                      | 1              | 1      |         |                        |                                                                     |      |    |
|                              |                 | S-7                                                  | 12    | 14                                                                                   | WoH            | WoH    |         | NR                     | No recovery after 3" Spoon Sampler tried.                           |      |    |
|                              |                 |                                                      |       |                                                                                      | WoH            | WoH    |         |                        |                                                                     |      |    |
|                              |                 | S-8                                                  | 14    | 16                                                                                   | WoH            | WoH    |         | 18                     | Black organic SILT, trace f Sand; significantly decomposed Organics |      |    |
| 20                           |                 |                                                      |       |                                                                                      | WoH            | WoH    |         |                        | SAME                                                                |      |    |
|                              |                 | S-9                                                  | 16    | 18                                                                                   | WoH            | WoH    |         | 20                     |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      | WoH            | WoH    |         |                        |                                                                     |      |    |
|                              |                 | S-10                                                 | 18    | 20                                                                                   | WoH            | WoH    |         | 12                     |                                                                     | SAME |    |
|                              |                 |                                                      |       |                                                                                      | WoH            | WoH    |         |                        |                                                                     |      | 20 |
| 25                           |                 |                                                      |       |                                                                                      |                |        |         |                        | Bottom of Boring @20.0'                                             |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
| 30                           |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
| 35                           |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
| 40                           |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |
|                              |                 |                                                      |       |                                                                                      |                |        |         |                        |                                                                     |      |    |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 6 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                 |                |        |         | BORING NO. GW-5           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|------------------------------|-----------------|------------------------------------------------------|-------|-----------------|----------------|--------|---------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------|--|
| SECTION:                     |                 | 8 <sup>th</sup> and Harrison St., Hoboken, NJ        |       |                 |                |        |         | FIELD BORING NO.          |                                                                                                                                                                                                                                |                                                                                      |      |  |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE: |                |        |         | GROUND ELEVATION: ±8.0    |                                                                                                                                                                                                                                |                                                                                      |      |  |
| BORING BY: Craig Test Boring |                 |                                                      |       |                 |                |        |         | DATE STARTED: 8-31-2015   |                                                                                                                                                                                                                                | GROUND WATER ELEVATION<br>0 Hr.<br>24 Hr.<br>20 ft. P.P. installed<br>Date:<br>Date: |      |  |
| INSPECTOR: C. Baldwin        |                 |                                                      |       |                 |                |        |         | DATE COMPLETED: 8-31-2015 |                                                                                                                                                                                                                                |                                                                                      |      |  |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                 | Blows on Spoon |        |         | REC.<br>(in)              | SOIL DESCRIPTION AND STRATIFICATION                                                                                                                                                                                            |                                                                                      | (ft) |  |
|                              |                 |                                                      |       |                 | 0 / 6          | 6 / 12 | 12 / 18 |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
| 5                            | Casing          | S-1                                                  | 0     | 2               |                | 15     |         | 10                        | Black and gray c-f SAND, and m-f Gravel, little(-) Silt; <b>6 in Asphalt</b><br>SAME<br>Drilled to 4 ft.<br>Black, gray and brown c-f SAND, some f Gravel, trace Silt;<br>brick, concrete fragments<br>SAME                    |                                                                                      |      |  |
|                              | ⇓               |                                                      |       |                 | 12             | 12     |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 | S-2                                                  | 2     | 2.8             | 48             | 50/3"  |         | 6                         |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
| 10                           |                 | S-3                                                  | 4     | 6               | 4              | 2      |         | 3                         | Black, gray and brown c-f SAND, some f Gravel, trace Silt;<br>brick, concrete fragments<br>SAME<br>Black, gray and brown m-f GRAVEL, and c-f Sand, trace Silt;<br>Fill, 3" Spoon Sampler tried<br>SAME, 3" Spoon Sampler tried |                                                                                      |      |  |
|                              |                 |                                                      |       |                 | 2              | 2      |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 | S-4                                                  | 6     | 8               | 2              | 1      |         | 8                         |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 | 2              | 4      |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
| 15                           |                 | S-5                                                  | 8     | 10              | 2              | 2      |         | NR                        | Black, gray and brown m-f GRAVEL, and c-f Sand, trace Silt;<br>Fill, 3" Spoon Sampler tried<br>SAME, 3" Spoon Sampler tried<br>SAME, 3" Spoon Sampler tried<br>SAME, 3" Spoon Sampler tried                                    |                                                                                      |      |  |
|                              |                 |                                                      |       |                 | 2              | 2      |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 | S-6                                                  | 10    | 12              | 2              | 2      |         | NR                        |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 | 2              | 4      |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
| 20                           |                 | S-7                                                  | 12    | 14              | 1              | 2      |         | NR                        | SAME, 3" Spoon Sampler tried<br>SAME, 3" Spoon Sampler tried<br>Black c-f SAND, little Silt<br>Black SILT, trace f Sand; heavy organics <b>odor?</b>                                                                           |                                                                                      |      |  |
|                              |                 |                                                      |       |                 | 2              | 2      |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 | S-8                                                  | 14    | 16              | 2              | 2      |         | NR                        |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 | 4              | 2      |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
| 25                           | Water           |                                                      |       |                 | 4              | 2      |         |                           | Black c-f SAND, little Silt<br>Black SILT, trace f Sand; heavy organics <b>odor?</b>                                                                                                                                           |                                                                                      |      |  |
|                              | ⇓               | S-9                                                  | 16    | 18              | 2              | 2      |         | 10                        |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 | 1              | 1      |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 | S-10                                                 | 18    | 20              | 2              | 6      |         | 12                        |                                                                                                                                                                                                                                |                                                                                      |      |  |
| 30                           |                 |                                                      |       |                 | 1              | 1      |         |                           | Bottom of Boring @20.0'                                                                                                                                                                                                        | 20                                                                                   |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
| 35                           |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
| 40                           |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |
|                              |                 |                                                      |       |                 |                |        |         |                           |                                                                                                                                                                                                                                |                                                                                      |      |  |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

Soil descriptions represent a field identification after D.M. Burmister unless otherwise noted.

| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                                                                                                                             |                |                        |         | BORING NO. GW-6  |                                                            |                                                             |                                                           |
|------------------------------|-----------------|------------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------|----------------|------------------------|---------|------------------|------------------------------------------------------------|-------------------------------------------------------------|-----------------------------------------------------------|
| SECTION:                     |                 | 11 <sup>th</sup> and Monroe St., Hoboken, NJ         |       |                                                                                                                             |                |                        |         | FIELD BORING NO. |                                                            |                                                             |                                                           |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE:                                                                                                             |                | GROUND ELEVATION: ±8.0 |         |                  |                                                            |                                                             |                                                           |
| BORING BY: Craig Test Boring |                 | DATE STARTED: 8-31-2015                              |       | GROUND WATER ELEVATION<br>0 Hr. Depth 6 ft. (EL+2.0 ft.)      Date: 8-31-2015<br>24 Hr.      Date:<br>20 ft. P.P. installed |                |                        |         |                  |                                                            |                                                             |                                                           |
| INSPECTOR: C. Baldwin        |                 | DATE COMPLETED: 8-31-2015                            |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH |                                                                                                                             | Blows on Spoon |                        |         | REC.<br>(in)     | SOIL DESCRIPTION AND STRATIFICATION                        | (ft)                                                        |                                                           |
|                              |                 |                                                      |       |                                                                                                                             | 0 / 6          | 6 / 12                 | 12 / 18 |                  |                                                            |                                                             |                                                           |
| 5                            | Casing          | S-1                                                  | 0     | 2                                                                                                                           |                | 6                      |         | 8                | Black and brown c-f SAND, little Silt; <b>6 in Asphalt</b> |                                                             |                                                           |
|                              | ↓               |                                                      |       |                                                                                                                             | 7              | 12                     |         |                  |                                                            |                                                             |                                                           |
|                              |                 | S-2                                                  | 2     | 4                                                                                                                           | 6              | 5                      |         | 14               |                                                            | Black, gray and brown c-f SAND, little Silt, trace f Gravel |                                                           |
|                              |                 |                                                      |       |                                                                                                                             | 3              | 3                      |         |                  |                                                            |                                                             |                                                           |
|                              |                 | S-3                                                  | 4     | 6                                                                                                                           | 3              | 1                      |         | 15               |                                                            |                                                             | Gray c-f SAND, some(+) m-f Gravel, little Silt; Wood chip |
| 10                           |                 |                                                      |       |                                                                                                                             | 2              | 1                      |         |                  | SAME                                                       |                                                             |                                                           |
|                              |                 | S-4                                                  | 6     | 8                                                                                                                           | 3              | 2                      |         | 12               |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             | 1              | 1                      |         |                  |                                                            |                                                             |                                                           |
|                              |                 | S-5                                                  | 8     | 10                                                                                                                          | 1              | 1                      |         | 5                |                                                            | Dark gray c-f SAND, little f Gravel; Glass piece            |                                                           |
|                              |                 |                                                      |       |                                                                                                                             | 1              | 1                      |         |                  |                                                            |                                                             |                                                           |
| 15                           |                 | S-6                                                  | 10    | 12                                                                                                                          | 1              | 1                      |         | 3                | Gray c-f SAND, little m-f Gravel, trace Silt; Fill         |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             | 1              | 1                      |         |                  |                                                            |                                                             |                                                           |
|                              |                 | S-7                                                  | 12    | 14                                                                                                                          | 1              | 2                      |         | 10               |                                                            | SAME                                                        |                                                           |
|                              |                 |                                                      |       |                                                                                                                             | 1              | 2                      |         |                  |                                                            |                                                             |                                                           |
|                              |                 | S-8                                                  | 14    | 16                                                                                                                          | 1              | 1                      |         | 4                |                                                            |                                                             | SAME                                                      |
| 20                           |                 |                                                      |       |                                                                                                                             | 2              | 1                      |         |                  | Black SILT, little f Sand; heavy organics <b>odor?</b>     |                                                             |                                                           |
|                              |                 | S-9                                                  | 16    | 18                                                                                                                          | 1              | 1                      |         | 16               |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             | 1              | 1                      |         |                  |                                                            |                                                             |                                                           |
|                              |                 | S-10                                                 | 18    | 20                                                                                                                          | 1              | 1                      |         | 15               |                                                            | SAME                                                        |                                                           |
|                              |                 |                                                      |       |                                                                                                                             | 1              | 1                      |         |                  |                                                            |                                                             | 20                                                        |
| 25                           |                 |                                                      |       |                                                                                                                             |                |                        |         |                  | Bottom of Boring @20.0'                                    |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
| 30                           |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
| 35                           |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
| 40                           |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |
|                              |                 |                                                      |       |                                                                                                                             |                |                        |         |                  |                                                            |                                                             |                                                           |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 6 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
 Inferred Change in Strata -----

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|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|------------------------------|--|------------------------------------------------------|------------|-----------------|-------|--------|----------------|---------------------------|-----------|---------------------------------------------------------------------------------------------------------------------|--|------|
| ROUTE                        |  | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |            |                 |       |        |                | BORING NO. GW-8           |           |                                                                                                                     |  |      |
| SECTION:                     |  | Willow Ave and 13 <sup>th</sup> St, Hoboken, NJ      |            |                 |       |        |                | FIELD BORING NO.          |           |                                                                                                                     |  |      |
| STATION:                     |  | OFFSET:                                              |            | REFERENCE LINE: |       |        |                | GROUND ELEVATION: ±8.0    |           |                                                                                                                     |  |      |
| BORING BY: Craig Test Boring |  |                                                      |            |                 |       |        |                | DATE STARTED: 8-26-2015   |           | GROUND WATER ELEVATION<br>0 Hr. Date:<br>24 Hr. Depth 7.7 ft. (EL+0.3 ft.) Date: 8-27-2015<br>20 ft. P.P. installed |  |      |
| INSPECTOR: C. Baldwin        |  |                                                      |            |                 |       |        |                | DATE COMPLETED: 8-26-2015 |           |                                                                                                                     |  |      |
| DEPTH (ft)                   |  | CASING BLOWS                                         | SAMPLE NO. |                 | DEPTH |        | Blows on Spoon |                           | REC. (in) |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 | 0 / 6 | 6 / 12 | 12 / 18        |                           |           | SOIL DESCRIPTION AND STRATIFICATION                                                                                 |  | (ft) |
|                              |  | Casing                                               | S-1        | 0               | 2     |        | 8              |                           | 12        | Gray f SAND, some(-) Silt, 1 ft. Asphalt and Sub-base                                                               |  |      |
|                              |  | ↓                                                    |            |                 |       | 4      | 4              |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      | S-2        | 2               | 4     | 5      | 4              |                           | 10        | SAME                                                                                                                |  |      |
|                              |  |                                                      |            |                 |       | 4      | 4              |                           |           |                                                                                                                     |  |      |
| 5                            |  |                                                      | S-3        | 4               | 6     | 3      | 2              |                           | 14        | Gray and brown, c-f(+) SAND, some Silt; wet @5 ft.                                                                  |  |      |
|                              |  |                                                      |            |                 |       | 2      | 6              |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      | S-4        | 6               | 8     | 3      | 3              |                           | 12        | SAME                                                                                                                |  |      |
|                              |  |                                                      |            |                 |       | 3      | 3              |                           |           |                                                                                                                     |  |      |
| 10                           |  |                                                      | S-5        | 8               | 10    | 3      | 4              |                           | 18        | Gray c-f SAND, little(+) Silt; trace fibers                                                                         |  |      |
|                              |  |                                                      |            |                 |       | 6      | 10             |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      | S-6        | 10              | 12    | 11     | 8              |                           | 8         | Gray m-f SAND, little(-) Silt                                                                                       |  |      |
|                              |  |                                                      |            |                 |       | 5      | 3              |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      | S-7        | 12              | 14    | 6      | 2              |                           | 18        | Gray m-f SAND, little Silt, trace(-) m Gravel                                                                       |  |      |
|                              |  |                                                      |            |                 |       | 4      | 6              |                           |           |                                                                                                                     |  |      |
| 15                           |  |                                                      | S-8        | 14              | 16    | 3      | 4              |                           | 8         | Gray and brown c-f SAND, little Silt, trace(-) m Gravel                                                             |  |      |
|                              |  |                                                      |            |                 |       | 5      | 11             |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      | S-9        | 16              | 18    | 8      | 7              |                           | 12        | Brown c-f SAND, some Silt, trace f Gravel                                                                           |  |      |
|                              |  |                                                      |            |                 |       | 10     | 7              |                           |           |                                                                                                                     |  |      |
| 20                           |  |                                                      | S-10       | 18              | 20    | 4      | 9              |                           | 14        | Brown c-f SAND, little Silt, little f Gravel; decomposed Shale                                                      |  |      |
|                              |  |                                                      |            |                 |       | 18     | 26             |                           |           |                                                                                                                     |  | 20   |
|                              |  |                                                      |            |                 |       |        |                |                           |           | Bottom of Boring 20.0'                                                                                              |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
| 25                           |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
| 30                           |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
| 35                           |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
|                              |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |
| 40                           |  |                                                      |            |                 |       |        |                |                           |           |                                                                                                                     |  |      |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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Approximate Change in Strata \_\_\_\_\_  
Inferred Change in Strata -----

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|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|------------------------------|-----------------|------------------------------------------------------|-------|-----------------|--------|---------|--------------|---------------------------------------------------|-----------------------------------------------|----|
| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken |       |                 |        |         |              | BORING NO. GW-9                                   |                                               |    |
| SECTION:                     |                 | 9 <sup>th</sup> and Grand St., Hoboken, NJ           |       |                 |        |         |              | FIELD BORING NO.                                  |                                               |    |
| STATION:                     |                 | OFFSET:                                              |       | REFERENCE LINE: |        |         |              | GROUND ELEVATION: ±7.0                            |                                               |    |
| BORING BY: Craig Test Boring |                 |                                                      |       |                 |        |         |              | DATE STARTED: 8-26-2015                           |                                               |    |
| INSPECTOR: C. Baldwin        |                 |                                                      |       |                 |        |         |              | DATE COMPLETED: 8-26-2015                         |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              | GROUND WATER ELEVATION                            |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              | 0 Hr. Date:                                       |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              | 24 Hr. Depth 5.7 ft. (EL+1.3 ft.) Date: 8-27-2015 |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              | 20 ft. P.P. installed                             |                                               |    |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                        | DEPTH | Blows on Spoon  |        |         | REC.<br>(in) | SOIL DESCRIPTION AND STRATIFICATION               | (ft)                                          |    |
|                              |                 |                                                      |       | 0 / 6           | 6 / 12 | 12 / 18 |              |                                                   |                                               |    |
| 5                            | Casing          | S-1                                                  | 0     | 2               | 2      | 2       |              | 6                                                 | TOPSOIL: Black m-f SAND, little Silt          |    |
|                              | ↓               |                                                      |       |                 | 2      | 2       |              |                                                   |                                               |    |
|                              |                 | S-2                                                  | 2     | 4               | 3      | 1       |              | 14                                                | Dark brown m-f(+) SAND, some Silt             |    |
|                              |                 |                                                      |       |                 | 3      | 3       |              |                                                   |                                               |    |
|                              |                 | S-3                                                  | 4     | 6               | 1      | 1       |              | 16                                                | Gray m-f SAND, trace(+) Silt; wet             |    |
| 10                           |                 |                                                      |       |                 | 1      | 2       |              |                                                   |                                               |    |
|                              |                 | S-4                                                  | 6     | 8               | 1      | 2       |              | 18                                                | Gray and light brown m-f SAND, trace(+) Silt  |    |
|                              |                 |                                                      |       |                 | 2      | 3       |              |                                                   |                                               |    |
|                              |                 | S-5                                                  | 8     | 10              | 2      | 3       |              | 18                                                | SAME                                          |    |
|                              |                 |                                                      |       |                 | 3      | 6       |              |                                                   |                                               |    |
| 15                           |                 | S-6                                                  | 10    | 12              | 1      | 2       |              | 20                                                | SAME                                          |    |
|                              |                 |                                                      |       |                 | 2      | 4       |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
| 20                           |                 | S-7                                                  | 15    | 17              | 4      | 3       |              | 22                                                | Brown SILT, some c-f Sand, little Clayey Silt |    |
|                              |                 |                                                      |       |                 | 6      | 11      |              |                                                   |                                               |    |
|                              |                 | S-8                                                  | 17    | 18.5            | 7      | 18      |              | 22?                                               | Brown c-f SAND, little Silt                   |    |
|                              |                 |                                                      |       |                 | 17     |         |              |                                                   |                                               |    |
| 20                           |                 | S-9                                                  | 18.5  | 20              | 13     | 10      |              | 18.5?                                             | SAME                                          | 20 |
| 25                           |                 |                                                      |       |                 | 16     |         |              |                                                   | Bottom of Boring @20.0'                       |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
| 30                           |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
| 35                           |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
| 40                           |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |
|                              |                 |                                                      |       |                 |        |         |              |                                                   |                                               |    |

|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 4 1/4 in.         |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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 Inferred Change in Strata -----

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|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|------------------------------|-----------------|--------------------------------------------------------|-------|---------------------------------------------------------------------------------------------------------------------|----------------|--------|---------|------------------------|---------------------------------------------------------------------------|------|
| ROUTE                        |                 | LOCAL NAME: Hudson River Rebuild by Design - Hoboken   |       |                                                                                                                     |                |        |         | BORING NO. GW-10       |                                                                           |      |
| SECTION:                     |                 | Willow Ave b/w Newark St. & Observer Hwy., Hoboken, NJ |       |                                                                                                                     |                |        |         | FIELD BORING NO.       |                                                                           |      |
| STATION:                     |                 | OFFSET:                                                |       | REFERENCE LINE:                                                                                                     |                |        |         | GROUND ELEVATION: ±4.0 |                                                                           |      |
| BORING BY: Craig Test Boring |                 | DATE STARTED: 8-27-2015                                |       | GROUND WATER ELEVATION<br>0 Hr. Depth 5.5 ft. (EL-1.5 ft.) Date: 8-27-2015<br>24 Hr. Date:<br>20 ft. P.P. installed |                |        |         |                        |                                                                           |      |
| INSPECTOR: C. Baldwin        |                 | DATE COMPLETED: 8-27-2015                              |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
| DEPTH<br>(ft)                | CASING<br>BLOWS | SAMPLE<br>NO.                                          | DEPTH |                                                                                                                     | Blows on Spoon |        |         | REC.<br>(in)           | SOIL DESCRIPTION AND STRATIFICATION                                       | (ft) |
|                              |                 |                                                        |       |                                                                                                                     | 0 / 6          | 6 / 12 | 12 / 18 |                        |                                                                           |      |
| 5                            | Casing          | S-1                                                    | 0     | 2                                                                                                                   |                | 52     |         | 8                      | Gray and dark gray c-f SAND, little m-f Gravel, little silt; 6" Asphalt   |      |
|                              | ↓               |                                                        |       |                                                                                                                     | 20             | 15     |         |                        |                                                                           |      |
|                              |                 | S-2                                                    | 2     | 4                                                                                                                   | 9              | 8      |         | 10                     | FILL: Brown and red brown c-f SAND, little Silt                           |      |
|                              |                 |                                                        |       |                                                                                                                     | 7              | 4      |         |                        |                                                                           |      |
|                              |                 | S-3                                                    | 4     | 6                                                                                                                   | 16             | 5      |         | 7                      | FILL: Brown, black and gray m-f SAND, some Silt; wet @5.5 ft.             |      |
| 10                           |                 |                                                        |       |                                                                                                                     | 2              | 2      |         |                        |                                                                           |      |
|                              |                 | S-4                                                    | 6     | 8                                                                                                                   | 2              | 1      |         | 5                      | Black c-f SAND, little f Gravel, trace(+) Silt                            | 8    |
|                              |                 |                                                        |       |                                                                                                                     | 1              | 1      |         |                        |                                                                           |      |
|                              |                 | S-5                                                    | 8     | 10                                                                                                                  | WoH            | WoH    |         | NR                     | Black Clay, trace(+) f Gravel, trace(+) C Sand,<br>Tried 3" spoon sampler |      |
|                              |                 |                                                        |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                           |      |
| 15                           |                 | S-6                                                    | 10    | 12                                                                                                                  | WoH            | WoH    |         | NR                     | SAME<br>Tried 3" spoon sampler                                            |      |
|                              |                 |                                                        |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                           |      |
|                              |                 | S-7                                                    | 12    | 14                                                                                                                  | WoH            | WoH    |         | 22                     | Black Clayey SILT, trace f Sand                                           |      |
|                              |                 |                                                        |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                           |      |
|                              |                 | S-8                                                    | 14    | 16                                                                                                                  | WoH            | WoH    |         | 24                     | Dark gray CLAY, trace(-) f Sand                                           |      |
| 20                           |                 |                                                        |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                           |      |
|                              |                 | S-9                                                    | 16    | 18                                                                                                                  | WoH            | WoH    |         | 24                     | SAME                                                                      |      |
|                              |                 |                                                        |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                           |      |
|                              |                 | S-10                                                   | 18    | 20                                                                                                                  | WoH            | WoH    |         | 18                     | SAME                                                                      |      |
|                              |                 |                                                        |       |                                                                                                                     | WoH            | WoH    |         |                        |                                                                           | 20   |
| 25                           |                 |                                                        |       |                                                                                                                     |                |        |         |                        | Bottom of Boring @20.0 ft.                                                |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
| 30                           |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
| 35                           |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
| 40                           |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |
|                              |                 |                                                        |       |                                                                                                                     |                |        |         |                        |                                                                           |      |

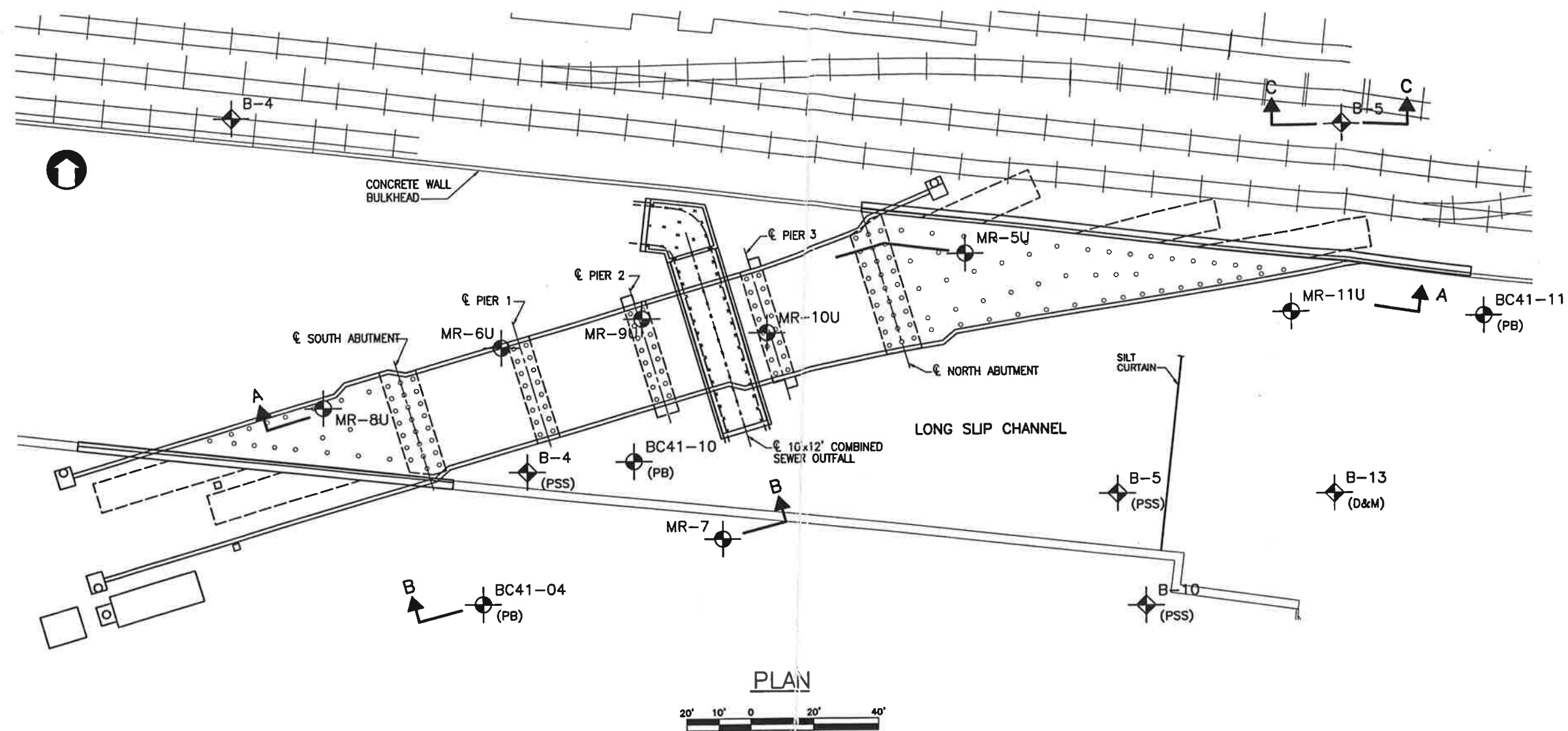
|                                       |                   |
|---------------------------------------|-------------------|
| Nominal I.D. of Casing                | 6 in.             |
| Nominal I.D. of Split Barrel Sampler  | 1 3/8 in.         |
| Weight/type of Hammer on Drive Pipe   | 140 lb.           |
| Weight/type of Hammer on Split Barrel | 140 lb. Automatic |
| Drop of Hammer on Drive Pipe          | 30 in.            |
| Drop of Hammer on Split Barrel        | 30 in.            |
| Core Size                             |                   |

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# **HBLR SOIL BORING 2001**



### LEGEND:

- B-1 - BORINGS BY OTHERS
- MR-8U - MRCE BORINGS
- BC41-10 (PB) - PBQD BORINGS

### GENERAL NOTES:

1. STRATIFICATIONS SHOWN ARE NECESSARY INTERPOLATIONS BETWEEN AND BEYOND BORINGS AND MAY NOT REPRESENT ACTUAL SUBSURFACE CONDITIONS.
2. ELEVATIONS REFER TO NATIONAL GEODETIC VERTICAL DATUM WHERE EL. 0.0 IS MEAN SEA LEVEL IN SANDY HOOK, NEW JERSEY IN 1929.
3. GEOLOGIC PROFILES ARE PROJECTED FROM PLAN DRAWING.
4. BORINGS MR-5U, MR-6U, MR-7 WERE MADE BY WARREN GEORGE, INC. IN AUGUST & SEPTEMBER 1999 AND BORINGS MR-8U, MR-9U, MR-10U & MR-11U WERE MADE BY WARREN GEORGE INC. IN FEBRUARY 2001. THESE BORING WERE MADE UNDER CONTINUOUS INSPECTION BY MUESER RUTLEDGE CONSULTING ENGINEERS. BORING LOCATIONS AND ELEVATIONS WERE SURVEYED BY PERINI SLATTERY, A JOINT VENTURE.
5. SOIL SAMPLE DESCRIPTIONS AND GROUNDWATER OBSERVATIONS ARE PROVIDED ON THE BORING LOGS IN APPENDIX.
6. DRILLING MUD LEVEL MEASURED IN BORINGS MAY NOT REPRESENT ACTUAL GROUNDWATER LEVELS.
7. BORINGS ILLUSTRATED ON GEOLOGIC SECTIONS ARE IN SOME CASES PROJECTED TO THE SECTION AND/OR OFFSET FOR CLARITY.

HUDSON BERGEN LIGHT RAIL TRANSIT SYSTEM  
LONG SLIP CHANNEL CROSSING  
JERSEY CITY NEW JERSEY

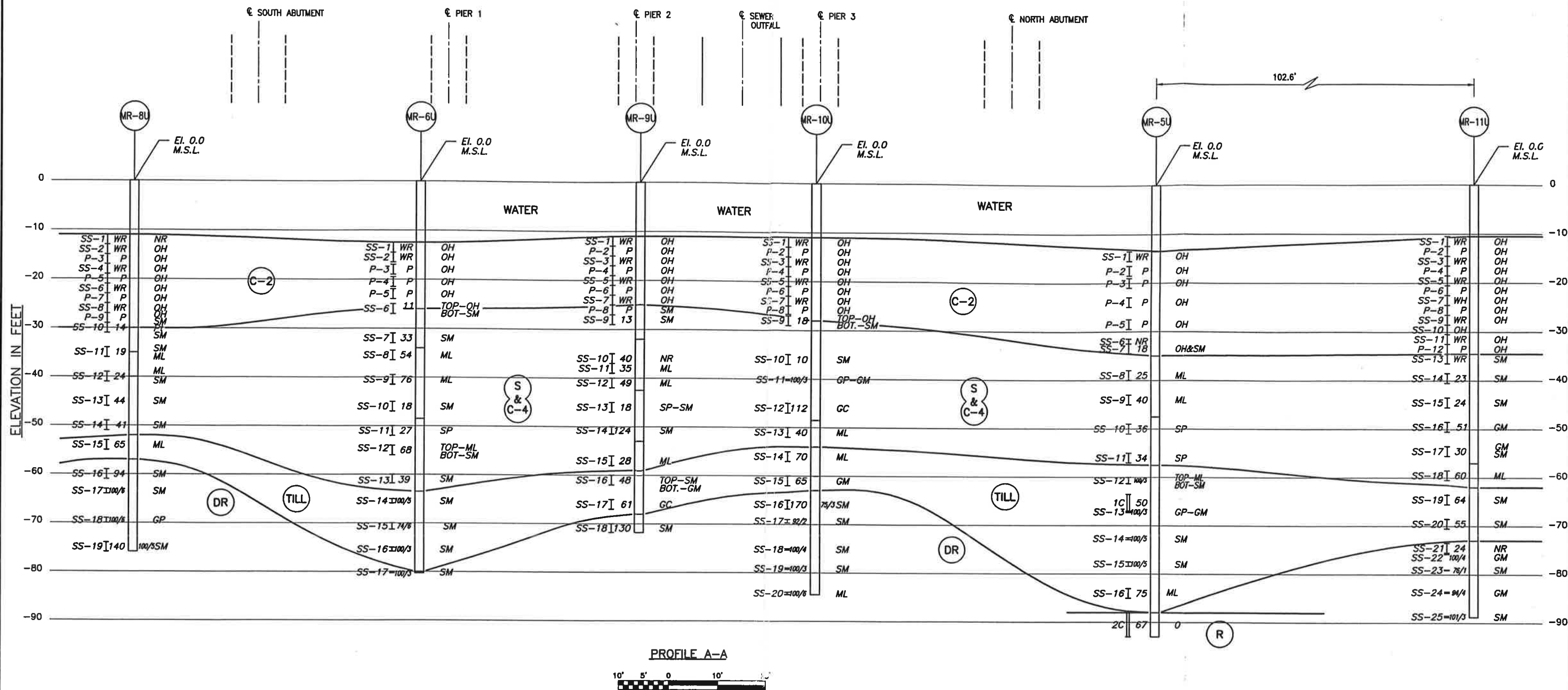
TWENTY-FIRST CENTURY  
RAIL CORPORATION  
JERSEY CITY NEW JERSEY

STV, INC.  
NEWARK NEW JERSEY

MUESER RUTLEDGE CONSULTING ENGINEERS  
708 THIRD AVENUE, NEW YORK, N.Y. 10017

|          |               |              |          |
|----------|---------------|--------------|----------|
| SCALE    | MADE BY E.C.  | DATE 3-12-01 | FILE NO. |
| AS SHOWN | CHK'D BY A.C. | DATE 3-12-01 | 8536     |

|                      |     |
|----------------------|-----|
| BORING LOCATION PLAN | B-1 |
|----------------------|-----|



## GENERAL STRATA DESIGNATIONS

- C-2 - ORGANIC MARINE CLAY
- C-4 - GLACIAL OUTWASH SILT
- S - GLACIAL OUTWASH SAND
- TILL - GLACIAL TILL
- DR - WEATHERED ROCK AND CEMENTED TILL
- ROCK - BEDROCK - SANDSTONE OR SERPENTINE

## NOTE:

FOR GENERAL NOTES SEE DRAWING NO. B-1.  
FOR BORING LEGEND SEE DRAWING NO. GS-2.

|                                          |               |              |             |
|------------------------------------------|---------------|--------------|-------------|
| HUDSON BERGEN LIGHT RAIL TRANSIT SYSTEM  |               |              |             |
| LONG SLIP CHANNEL CROSSING               |               |              |             |
| JERSEY CITY                              |               | NEW JERSEY   |             |
| TWENTY-FIRST CENTURY<br>RAIL CORPORATION |               |              |             |
| JERSEY CITY                              |               | NEW JERSEY   |             |
| STV, INC.                                |               |              |             |
| NEWARK                                   |               | NEW JERSEY   |             |
| MUESER RUTLEDGE CONSULTING ENGINEERS     |               |              |             |
| 708 THIRD AVENUE, NEW YORK, N.Y. 10017   |               |              |             |
| SCALE                                    | MADE BY E.C.  | DATE 3-12-01 | FILE NO.    |
| GRAPHIC                                  | CHK'D BY A.C. | DATE 3-12-01 | 8536        |
| GEOLOGIC SECTION A-A                     |               |              | DRAWING NO. |
|                                          |               |              | GS-1        |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

LOCATION: Jersey City, NJ

MEAN SEA LEVEL : 0.0

NORTH: 692520.4

EAST: 622031.6

RIG TYPE: Failing 1500 (Barge Mounted)

DRILLING METHOD: Rotary wash with casing

CASING: 5.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL:

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

## Boring No. MR-10U

## TIDE LEVELS

| DATE    | TIME  | ELEVATION<br>(FEET) |
|---------|-------|---------------------|
| 2-12-01 | 06:50 | -2.0                |
| 2-12-01 | 13:30 | +1.0                |
| 2-12-01 | 15:15 | -1.0                |
| 2-13-01 | 06:40 | -1.5                |
| 2-13-01 | 10:00 | +2.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                          | CASING          |       | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|---------------------------------------------------------------------|-----------------|-------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                     | Depth<br>(feet) | Bl/ft |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 0               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 1               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 2               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 3               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 4               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 5               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 6               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 7               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 8               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 9               |             |                                                                     |                 |       |                 |        |     |                 |               |
| 10              |             |                                                                     |                 |       |                 |        |     |                 |               |
|                 |             | Mudline at El. -11.0                                                |                 |       |                 |        |     |                 |               |
| 11              | OH          | SS-1 Black CLAYEY ORGANIC SILT, trace f Sand, (WC=220%)             |                 |       | WR              | SS     | 1   | 11.0-13.0       | 6"            |
| 12              |             |                                                                     |                 |       |                 |        |     |                 |               |
| 13              | OH          | P-2 Same as SS-1, (WC=172%)                                         |                 |       | PUSHED          | P      | 2   | 13.0-15.0       | 24"           |
| 14              |             |                                                                     |                 |       |                 |        |     |                 |               |
| 15              | OH          | SS-3 Black CLAYEY ORGANIC SILT, trace f Sand, Vegetation, (WC=172%) |                 |       | WR              | SS     | 3   | 15.0-17.0       | 9"            |
| 16              |             |                                                                     |                 |       |                 |        |     |                 |               |
| 17              | OH          | P-4 Same as P-2, (WC=137%)                                          |                 |       | PUSHED          | P      | 4   | 17.0-19.0       | 22"           |
| 18              |             |                                                                     |                 |       |                 |        |     |                 |               |
| 19              | OH          | SS-5 Black CLAYEY ORGANIC SILT, trace f Sand, Vegetation, (WC=117%) |                 |       | WR              | SS     | 5   | 19.0-21.0       | 10"           |
| 20              |             |                                                                     |                 |       |                 |        |     |                 |               |
| 21              | OH          | P-6 Same as P-2, (WC=137%)                                          |                 |       | PUSHED          | P      | 6   | 21.0-23.0       | 24"           |
| 22              |             |                                                                     |                 |       |                 |        |     |                 |               |
| 23              | OH          | SS-7 Black CLAYEY ORGANIC SILT, trace f Sand, Vegetation, (WC=148%) |                 |       | WR              | SS     | 7   | 23.0-25.0       | 15"           |
| 24              |             |                                                                     |                 |       |                 |        |     |                 |               |
| 25              | OH          | P-8 Black CLAYEY ORGANIC SILT, trace f Sand, Wood (WC=144%)         |                 |       | PUSHED          | P      | 8   | 25.0-26.7       | 20"           |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

Boring No. MR-10U

LOCATION: Jersey City, NJ

STARTED: 2-12-01

MEAN SEA LEVEL : 0.0

COMPLETED: 2-13-01

NORTH: 692520.4

EAST: 622031.6

GROUTED ON: 2-13-01

RIG TYPE: Falling 1500 (Barge Mounted)

CONTRACTOR: Warren George Inc.

DRILLING METHOD: Rotary wash with casing

CASING: 5.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL:

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

## TIDE LEVELS

| DATE    | TIME  | ELEVATION<br>(FEET) |
|---------|-------|---------------------|
| 2-12-01 | 06:50 | -2.0                |
| 2-12-01 | 13:30 | +1.0                |
| 2-12-01 | 15:15 | -1.0                |
| 2-13-01 | 06:40 | -1.5                |
| 2-13-01 | 10:00 | +2.0\               |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                               | CASING          |                  | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|--------------------------------------------------------------------------|-----------------|------------------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                          | Depth<br>(feet) | Bl/ft            |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 25              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 26              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 27              | OH          | SS-9 Top: Black CLAYEY ORGANIC SILT, trace f Sand, Vegetation, (WC=106%) |                 | P<br>U<br>S<br>H | 12-9-9-10       | SS     | 9   | 27.0-29.0       | 24"           |
| 28              |             | 28.0', El. -28.0, Bottom of Organic Soil                                 |                 |                  |                 |        |     |                 |               |
| 29              | SM          | SS-9 Bot: Gray mf SAND, some Silt, trace Clay                            |                 | M<br>U<br>D      |                 |        |     |                 |               |
| 30              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 31              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 32              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 33              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 34              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 35              | SM          | SS-10 Top: Gray brown micaceous f SAND and SILT                          |                 |                  | 2-5-5-31        | SS     | 10  | 35.0-37.0       | 21"           |
| 36              | SM          | SS-10 Bot: Green and red brown mf SAND and SILT, little mf Gravel        |                 |                  |                 |        |     |                 |               |
| 37              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 38              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 39              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 40              | GP-GM       | SS-11 White mf ROCK FRAGMENTS, trace cf Sand, Silt                       |                 | M<br>U<br>D      | 100/3"          | SS     | 11  | 40.0-40.3       | 2"            |
| 41              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 42              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 43              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 44              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 45              | GC          | SS-12 Light green mf GRAVEL and CLAY, tr fm Sand                         |                 |                  | 16-19-93-27     | SS     | 12  | 45.0-47.0       | 7"            |
| 46              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 47              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 48              |             | 48.5', El. -48.5, Bottom of Sand                                         |                 |                  |                 |        |     |                 |               |
| 49              |             |                                                                          |                 |                  |                 |        |     |                 |               |
| 50              | ML          | SS-13 Gray brown SILT and cf SAND, (WC=17%)                              |                 |                  | 14-17-23-27     | SS     | 13  | 50.0-52.0       | 14"           |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

LOCATION: Jersey City, NJ

MEAN SEA LEVEL : 0.0

NORTH: 692520.4

EAST: 622031.6

RIG TYPE: Failing 1500 (Barge Mounted)

DRILLING METHOD: Rotary wash with casing

CASING: 5.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL:

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

STARTED: 2-12-01

COMPLETED: 2-13-01

GROUTED ON: 2-13-01

CONTRACTOR: Warren George Inc.

## Boring No. MR-10U

## TIDE LEVELS

| DATE    | TIME  | ELEVATION<br>(FEET) |
|---------|-------|---------------------|
| 2-12-01 | 06:50 | -2.0                |
| 2-12-01 | 13:30 | +1.0                |
| 2-12-01 | 15:15 | -1.0                |
| 2-13-01 | 06:40 | -1.5                |
| 2-13-01 | 10:00 | +2.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                                                                               | CASING          |       | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|--------------------------------------------------------------------------------------------------------------------------|-----------------|-------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                                                                          | Depth<br>(feet) | Bl/ft |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 50              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 51              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 52              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 53              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 54              |             | 54.0', El. -54.0, Top of Till                                                                                            |                 |       |                 |        |     |                 |               |
| 55              | ML          | SS-14 Red-brown SILT, sm cf Gravel, cf Sand, (WC=17%)                                                                    |                 |       | 18-36-34-29     | SS     | 14  | 55.0-57.0       | 15"           |
| 56              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 57              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 58              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 59              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 60              | GM          | SS-15 Brown gray cf GRAVEL, little cf Sand, Silt                                                                         |                 |       | 34-33-32-39     | SS     | 15  | 60.0-62.0       | 3"            |
| 61              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 62              |             | 63.0', El. -63.0 , Bottom of Till                                                                                        |                 |       |                 |        |     |                 |               |
| 63              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 64              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 65              | SM          | SS-16 Brown green gray mf SAND and SILT, sm Decomposed rock fragments, mf Rock fragments, trace c Sand (Decomposed Rock) |                 |       | 66-93-77-75/3"  | SS     | 16  | 65.0-66.8       | 18"           |
| 66              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 67              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 68              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 69              | SM          | SS-17 Top: Red-brown cf SAND and SILT, (Decomposed Rock)                                                                 |                 |       | 72-94/2"        | SS     | 17  | 69.0-69.7       | 7"            |
| 70              |             | SS-17 Bot: Gray micaceous f SAND, sm Silt, (Decomposed Rock)                                                             |                 |       |                 |        |     |                 |               |
| 71              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 72              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 73              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 74              |             |                                                                                                                          |                 |       |                 |        |     |                 |               |
| 75              | SM          | SS-18 Red brown micaceous f SAND, sm Silt, (Decomposed Rock)                                                             |                 |       | 100/4"          | SS     | 18  | 75.0-75.3       | 4"            |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

LOCATION: Jersey City, NJ

MEAN SEA LEVEL : 0.0

NORTH: 692520.4

EAST: 622031.6

RIG TYPE: Failing 1500 (Barge Mounted)

DRILLING METHOD: Rotary wash with casing

CASING: 5.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL:

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

Boring No. MR-10U

## TIDE LEVELS

| DATE    | TIME  | ELEVATION<br>(FEET) |
|---------|-------|---------------------|
| 2-12-01 | 06:50 | -2.0                |
| 2-12-01 | 13:30 | +1.0                |
| 2-12-01 | 15:15 | -1.0                |
| 2-13-01 | 06:40 | -1.5                |
| 2-13-01 | 10:00 | +2.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                                         | CASING          |                                               | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|------------------------------------------------------------------------------------|-----------------|-----------------------------------------------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                                    | Depth<br>(feet) | Bl/ft                                         |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 75              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 76              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 77              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 78              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 79              | SM          | SS-19 Light green cf SAND, sm Silt, mf Rock fragments, (Decomposed Rock)           |                 | M<br>U<br>D<br><br>R<br>O<br>T<br>A<br>R<br>Y | 100/3"          | SS     | 19  | 79.0-79.3       | 3"            |
| 80              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 81              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 82              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 83              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 84              | ML          | SS-20 Red-brown micaceous SILT and f SAND, (Decomposed Rock)                       |                 |                                               | 100/6"          | SS     | 20  | 84.0-84.5       | 6"            |
| 85              |             | End of Boring at 84.5', El -84.5.<br>Borehole grouted upon completion of drilling. |                 |                                               |                 |        |     |                 |               |
| 86              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 87              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 88              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 89              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 90              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 91              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 92              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 93              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 94              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 95              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 96              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 97              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 98              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 99              |             |                                                                                    |                 |                                               |                 |        |     |                 |               |
| 100             |             |                                                                                    |                 |                                               |                 |        |     |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

Boring No. MR-11U

LOCATION: Jersey City, NJ

STARTED: 2-8-01

MEAN SEA LEVEL: 0.0

COMPLETED: 2-9-01

NORTH: 692526.2

EAST: 622194.6

GROUTED ON: 2-9-01

RIG TYPE: Falling 1500 (Barge Mounted)

CONTRACTOR: Warren George Inc.

DRILLING METHOD: Rotary wash with casing

CASING: 5.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL:

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

## TIDE LEVELS

| DATE   | TIME  | ELEVATION<br>(FEET) |
|--------|-------|---------------------|
| 2-8-01 | 06:55 | +3.0                |
| 2-8-01 | 08:00 | +4.0                |
| 2-8-01 | 14:00 | -3.0                |
| 2-9-01 | 07:00 | +4.0                |
| 2-9-01 | 07:30 | +4.5                |
| 2-9-01 | 13:15 | -1.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                           | CASING          |       | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|----------------------------------------------------------------------|-----------------|-------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                      | Depth<br>(feet) | Bl/ft |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 0               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 1               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 2               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 3               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 4               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 5               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 6               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 7               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 8               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 9               |             |                                                                      |                 |       |                 |        |     |                 |               |
| 10              |             |                                                                      |                 |       |                 |        |     |                 |               |
|                 |             | Mudline at El. -10.5                                                 |                 |       |                 |        |     |                 |               |
| 11              | OH          | SS-1 Gray & black CLAYEY ORGANIC SILT, trace f Sand, (WC=202%)       |                 |       | WR              | SS     | 1   | 10.5-12.5       | 2"            |
| 12              | OH          | P-2 Black CLAYEY ORGANIC SILT, trace f Sand, (WC=157%)               |                 |       | PUSHED          | P      | 2   | 12.5-14.5       | 24"           |
| 13              |             |                                                                      |                 | P     |                 |        |     |                 |               |
| 14              | OH          | SS-3 Same as P-2, (WC=158%)                                          |                 | U     | WR              | SS     | 3   | 14.5-16.5       | 8"            |
| 15              |             |                                                                      |                 |       |                 |        |     |                 |               |
| 16              | OH          | P-4 Same as P-2, (WC=147%)                                           |                 |       | PUSHED          | P      | 4   | 16.5-18.5       | 24"           |
| 17              |             |                                                                      |                 | P     |                 |        |     |                 |               |
| 18              | OH          | SS-5 Same as P-2, (WC=169%)                                          |                 | U     | WR              | SS     | 5   | 18.5-20.5       | 6"            |
| 19              |             |                                                                      |                 |       |                 |        |     |                 |               |
| 20              | OH          | P-6 Same as P-2, trace fm Gravel, (WC=113%)                          |                 |       | PUSHED          | P      | 6   | 20.5-22.5       | 12"           |
| 21              |             |                                                                      |                 | P     |                 |        |     |                 |               |
| 22              | OH          | SS-7 Same as P-2, (WC=147%)                                          |                 | U     | WH              | SS     | 7   | 22.5-24.5       | 5"            |
| 23              |             |                                                                      |                 |       |                 |        |     |                 |               |
| 24              | OH          | P-8 Black CLAYEY ORGANIC SILT, trace Gravel, Wood, f Sand, (WC=128%) |                 |       | PUSHED          | P      | 8   | 24.5-26.5       | 24"           |
| 25              |             |                                                                      |                 |       |                 |        |     |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

Boring No. MR-11U

LOCATION: Jersey City, NJ

STARTED: 2-8-01

MEAN SEA LEVEL: 0.0

COMPLETED: 2-9-01

NORTH: 692526.2

EAST: 622194.6

GROUTED ON: 2-9-01

RIG TYPE: Failing 1500 (Barge Mounted)

CONTRACTOR: Warren George Inc.

DRILLING METHOD: Rotary wash with casing

CASING: 5.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL:

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

## TIDE LEVELS

| DATE   | TIME  | ELEVATION<br>(FEET) |
|--------|-------|---------------------|
| 2-8-01 | 06:55 | +3.0                |
| 2-8-01 | 08:00 | +4.0                |
| 2-8-01 | 14:00 | -3.0                |
| 2-9-01 | 07:00 | +4.0                |
| 2-9-01 | 07:30 | +4.5                |
| 2-9-01 | 13:15 | -1.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                         | CASING          |                                               | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|--------------------------------------------------------------------|-----------------|-----------------------------------------------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                    | Depth<br>(feet) | Bl/ft                                         |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 25              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 26              | OH          | SS-9 Same as SS-5, trace Shells, (WC=152%)                         |                 | P<br>U<br>S<br>H                              | WR              | SS     | 9   | 26.5-28.5       | 4"            |
| 27              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 28              | OH          | P-10 Same as SS-5, (WC=127%)                                       |                 |                                               | PUSHED          | P      | 10  | 28.5-30.5       | 24"           |
| 29              |             |                                                                    |                 | P<br>U<br>S<br>H                              |                 |        |     |                 |               |
| 30              | OH          | SS-11 Same as SS-5, trace Vegetation,<br>(WC=120%)                 |                 |                                               | WR              | SS     | 11  | 30.5-32.5       | 8"            |
| 31              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 32              | OH          | P-12 Same as SS-5, (WC=108%)                                       |                 |                                               | PUSHED          | P      | 12  | 32.5-34.5       | 24"           |
| 33              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 34              |             | 34.5', El. -34.5, Bottom of Organic Soil                           |                 |                                               |                 |        |     |                 |               |
| 35              | SM          | SS-13 Dark gray mf SAND and SILT, trace Clay<br>pockets            |                 | M<br>U<br>D<br><br>R<br>O<br>T<br>A<br>R<br>Y | WR              | SS     | 13  | 34.5-36.5       | 12"           |
| 36              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 37              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 38              | SM          | SS-14 Dark gray mf SAND, sm cf Gravel, Silt,<br>trace c Sand       |                 |                                               | 9-14-9-13       | SS     | 14  | 38.5-40.5       | 18"           |
| 39              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 40              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 41              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 42              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 43              | SM          | SS-15 Brown cf SAND, little Silt pockets, Silt, trace<br>mf GRAVEL |                 |                                               | 11-12-12-15     | SS     | 15  | 43.5-45.5       | 11"           |
| 44              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 45              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 46              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 47              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 48              | GM          | Gray mf GRAVEL, little Silt, fm Sand, (Wash<br>Sample)             |                 |                                               | 17-25-26-30     | SS     | 16  | 48.5-50.5       |               |
| 49              |             |                                                                    |                 |                                               |                 |        |     |                 |               |
| 50              |             |                                                                    |                 |                                               |                 |        |     |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

LOCATION: Jersey City, NJ

MEAN SEA LEVEL: 0.0

NORTH: 692526.2

EAST: 622194.6

RIG TYPE: Falling 1500 (Barge Mounted)

DRILLING METHOD: Rotary wash with casing

CASING: 5.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL:

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

STARTED: 2-8-01

COMPLETED: 2-9-01

GROUTED ON: 2-9-01

CONTRACTOR: Warren George Inc.

## Boring No. MR-11U

| TIDE LEVELS |       |                  |
|-------------|-------|------------------|
| DATE        | TIME  | ELEVATION (FEET) |
| 2-8-01      | 06:55 | +3.0             |
| 2-8-01      | 08:00 | +4.0             |
| 2-8-01      | 14:00 | -3.0             |
| 2-9-01      | 07:00 | +4.0             |
| 2-9-01      | 07:30 | +4.5             |
| 2-9-01      | 13:15 | -1.0             |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                                                       | CASING          |       | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|--------------------------------------------------------------------------------------------------|-----------------|-------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                                                  | Depth<br>(feet) | Bl/ft |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 50              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 51              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 52              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 53              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 54              | GM<br>SM    | SS-17 Top 2": Brown mf GRAVEL and SILT<br>SS-17 Bot: Brown cf SAND, little Silt, trace mf Gravel |                 |       | 10-15-15-20     | SS     | 17  | 53.5-55.5       | 12"           |
| 55              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 56              |             | 57.0', El. -57.0, Bottom of Sand                                                                 |                 |       |                 |        |     |                 |               |
| 57              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 58              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 59              | ML          | SS-18 Brown SILT, trace cf Sand pockets,<br>(WC=27%)                                             |                 |       | 16-28-32-23     | SS     | 18  | 58.5-60.5       | 8"            |
| 60              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 61              |             | 62.0', El. -62.0, Top of Till                                                                    |                 |       |                 |        |     |                 |               |
| 62              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 63              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 64              | SM          | SS-19 Reddish brown mf SAND, some mf Gravel,<br>Silt, trace Sand                                 |                 |       | 12-23-41-92     | SS     | 19  | 63.5-65.5       | 6"            |
| 65              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 66              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 67              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 68              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 69              | SM          | SS-20 Reddish brown to green mf SAND, some mf Gravel, Silt, trace c Sand                         |                 |       | 30-25-30-29     | SS     | 20  | 68.5-70.5       | 9"            |
| 70              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 71              |             |                                                                                                  |                 |       |                 |        |     |                 |               |
| 72              |             | 73.0', El. -73.0, Bottom of Till                                                                 |                 |       |                 |        |     |                 |               |
| 73              |             | Rig chatter from 73' to 75'.                                                                     |                 |       |                 |        |     |                 |               |
| 74              |             | SS-21 No recovery                                                                                |                 |       | 10-12-22-22     | SS     | 21  | 73.5-75.5       | 0"            |
| 75              |             |                                                                                                  |                 |       |                 |        |     |                 |               |

LOCATION: Jersey City, NJ

STARTED: 2-8-01

MEAN SEA LEVEL: 0.0

COMPLETED: 2-9-01

NORTH: 692526.2

EAST: 622194.6

GROUTED ON: 2-9-01

RIG TYPE: Failing 1500 (Barge Mounted)

CONTRACTOR: Warren George Inc.

DRILLING METHOD: Rotary wash with casing

CASING: 5.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL:

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

## TIDE LEVELS

| DATE   | TIME  | ELEVATION<br>(FEET) |
|--------|-------|---------------------|
| 2-8-01 | 06:55 | +3.0                |
| 2-8-01 | 08:00 | +4.0                |
| 2-8-01 | 14:00 | -3.0                |
| 2-9-01 | 07:00 | +4.0                |
| 2-9-01 | 07:30 | +4.5                |
| 2-9-01 | 13:15 | -1.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                                          | CASING          |       | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|-------------------------------------------------------------------------------------|-----------------|-------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                                     | Depth<br>(feet) | Bl/ft |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 75              | GM          | SS-22 Green mf GRAVEL and cf SAND, little Silt,<br>(Decomposed Rock)                |                 |       | 100/4"          | SS     | 22  | 75.5-75.8       | 2"            |
| 76              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 77              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 78              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 79              | SM          | SS-23 Gray brown cf SAND, some Silt, little mf<br>Gravel, Decomposed Rock Fragments |                 |       | 76/1"           | SS     | 23  | 79.0-79.1       | 1"            |
| 80              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 81              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 82              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 83              | GM          | SS-24 Green & red mf ROCK FRAGMENTS, little<br>cf Sand, Silt, (Decomposed Rock)     |                 |       | 94/4"           | SS     | 24  | 83.5-83.8       | 3"            |
| 84              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 85              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 86              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 87              | SM          | SS-25 Brown & green mf SAND, trace coarse<br>Sand, (Decomposed Rock), (WC=18%)      |                 |       | 101/3"          | SS     | 25  | 88.5-88.8       | 3"            |
| 88              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 89              |             | End of Boring at 88.8', El. -88.8<br>Borehole grouted upon completion of drilling.  |                 |       |                 |        |     |                 |               |
| 90              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 91              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 92              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 93              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 94              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 95              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 96              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 97              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 98              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 99              |             |                                                                                     |                 |       |                 |        |     |                 |               |
| 100             |             |                                                                                     |                 |       |                 |        |     |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

**Boring No. MR-5U**

LOCATION: Jersey City, NJ

STARTED: 8-31-99

GROUND SURFACE ELEVATION: +0.0±

COMPLETED: 9-2-99

NORTH: 692544.9 EAST: 622093.7

GROUTED ON: 9-2-99

RIG TYPE: DK-50 (Barge Mounted)

CONTRACTOR: Warren George Inc.

DRILLING METHOD: Rotary wash with casing

CASING: 3.0" &amp; 4.0" I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL: NX Double Tube (2 1/8" I.D.)

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

**TIDE LEVELS**

| DATE    | TIME  | ELEVATION<br>(FEET) |
|---------|-------|---------------------|
| 8-31-99 | 09:00 | +3.0                |
| 9-1-99  | 12:00 | +4.0                |
| 9-2-99  | 07:00 | +2.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)              | CASING          |                  | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|---------------------------------------------------------|-----------------|------------------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                         | Depth<br>(feet) | Bl/ft            |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 0               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 1               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 2               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 3               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 4               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 5               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 6               |             | WATER                                                   |                 |                  |                 |        |     |                 |               |
| 7               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 8               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 9               |             |                                                         |                 |                  |                 |        |     |                 |               |
| 10              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 11              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 12              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 13              |             | Mudline at El. -13.5'                                   |                 |                  |                 |        |     |                 |               |
| 14              | OH          | SS-1 Black gray CLAYEY ORGANIC SILT,<br>(pp=0, WC=147%) |                 |                  | WR              | SS     | 1   | 13.5-15.5       |               |
| 15              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 16              | OH          | P-2 Same as SS-1, (pp=0)                                |                 | P<br>U<br>S<br>H | PUSHED          | P      | 2   | 16.5-18.5       | 20"           |
| 17              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 18              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 19              | OH          | P-3 Same as SS-1, (pp=0)                                |                 |                  | PUSHED          | P      | 3   | 19.0-21.0       | 24"           |
| 20              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 21              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 22              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 23              | OH          | P-4 Black gray CLAYEY ORGANIC SILT, trace<br>Wood       |                 |                  | PUSHED          | P      | 4   | 23.0-25.0       | 6"            |
| 24              |             |                                                         |                 |                  |                 |        |     |                 |               |
| 25              |             |                                                         |                 |                  |                 |        |     |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

LOCATION: Jersey City, NJ

GROUND SURFACE ELEVATION: +0.0±

NORTH: 692544.9

EAST: 622093.7

RIG TYPE: DK-50 (Barge Mounted)

DRILLING METHOD: Rotary wash with casing

CASING: 3.0" &amp; 4.0" I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL: NX Double Tube (2 1/8" I.D.)

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

STARTED: 8-31-99

COMPLETED: 9-2-99

GROUTED ON: 9-2-99

CONTRACTOR: Warren George Inc.

## Boring No. MR-5U

| TIDE LEVELS |       |                     |
|-------------|-------|---------------------|
| DATE        | TIME  | ELEVATION<br>(FEET) |
| 8-31-99     | 09:00 | +3.0                |
| 9-1-99      | 12:00 | +4.0                |
| 9-2-99      | 07:00 | +2.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                        | CASING          |                                 | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|-------------------------------------------------------------------|-----------------|---------------------------------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                   | Depth<br>(feet) | Bl/ft                           |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 25              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 26              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 27              | OH          | P-5 Same as P-4, (pp=0)                                           |                 | P<br>U<br>S<br>H                | PUSHED          | P      | 5   | 27.5-29.5       | 20"           |
| 28              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 29              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 30              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 31              |             | SS-6 No recovery                                                  |                 |                                 | PUSHED          | P      | 6   | 31.5-32.5       | 0"            |
| 32              | OH &<br>SM  | SS-7 Dark gray SLIGHTLY ORGANIC SILTY CLAY<br>& fm Sand, (WC=57%) |                 |                                 | 8-8-10-12       | SS     | 7   | 32.5-34.5       |               |
| 33              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 34              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 35              |             | 35.0', El. -35.0, Bottom of Organic Soil                          |                 |                                 |                 |        |     |                 |               |
| 36              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 37              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 38              | ML          | SS-8 Brown SILT, trace f Sand, (WC=23%)                           |                 | D<br>R<br>I<br>L<br>L<br>E<br>D | 8-11-14-22      | SS     | 8   | 38.0-40.0       |               |
| 39              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 40              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 41              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 42              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 43              | ML          | SS-9 Brown SILT, little mf Gravel, trace f Sand,<br>(WC=18%)      |                 | A<br>H<br>E<br>A<br>D           | 16-16-24-23     | SS     | 9   | 43.0-45.0       |               |
| 44              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 45              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 46              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 47              |             | 47.5', El. -47.5, Bottom of Silt                                  |                 | O<br>F                          |                 |        |     |                 |               |
| 48              |             |                                                                   |                 |                                 |                 |        |     |                 |               |
| 49              | SP          | SS-10 Brown cf SAND, some mf Gravel, trace Silt                   |                 | C<br>A<br>S<br>I<br>N<br>G      | 15-16-20-24     | SS     | 10  | 49.0-51.0       |               |
| 50              |             |                                                                   |                 |                                 |                 |        |     |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

Boring No. MR-5U

LOCATION: Bayonne, NJ

STARTED: 8-31-99

GROUND SURFACE ELEVATION: +0.0±

COMPLETED: 9-2-99

NORTH: 692544.9 EAST: 622093.7

GROUTED ON: 9-2-99

RIG TYPE: DK-50 (Barge Mounted)

CONTRACTOR: Warren George Inc.

DRILLING METHOD: Rotary wash with casing

CASING: 3.0" &amp; 4.0" I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL: NX Double Tube (2 1/8" I.D.)

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

## TIDE LEVELS

| DATE    | TIME  | ELEVATION<br>(FEET) |
|---------|-------|---------------------|
| 8-31-99 | 09:00 | +3.0                |
| 9-1-99  | 12:00 | +4.0                |
| 9-2-99  | 07:00 | +2.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                                                                    | CASING          |       | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|---------------------------------------------------------------------------------------------------------------|-----------------|-------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                                                               | Depth<br>(feet) | Bl/ft |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 50              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 51              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 52              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 53              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 54              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 55              | SP          | SS-11 Brown cf SAND, little f Gravel, trace Silt<br>(Possible Wash Sample)                                    |                 |       | 6-12-22-30      | SS     | 11  | 55.0-57.0       |               |
| 56              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 57              |             | 57.5', El. -57.5, End of Sand                                                                                 |                 |       |                 |        |     |                 |               |
| 58              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 59              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 60              | ML<br>SM    | SS-12 Top: Brown SILT, trace f Sand<br>Bottom 6": Gray brown fc SAND, some mf Gravel,<br>some Silt            |                 |       | 34-45-100/3"    | SS     | 12  | 60.0-61.25      |               |
| 61              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 62              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 63              |             | Hard drilling at 63.0'<br>C-1 BOULDER                                                                         |                 |       |                 | C      | 1   | 63.5-67.0       | 21.0"         |
| 64              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 65              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 66              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 67              | GP-<br>GM   | SS-13 Brown cf GRAVEL, trace cf Sand, trace Silt                                                              |                 |       | 100/3"          | SS     | 13  | 67.0-67.25      |               |
| 68              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 69              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 70              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 71              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 72              |             | Smoother drilling at 72.0'.                                                                                   |                 |       |                 |        |     |                 |               |
| 73              | SM          | SS-14 Red brown fc SAND and Silt, trace Clay<br>pockets, trace f Gravel, trace decomposed Gravel<br>fragments |                 |       | 100/5"          | SS     | 14  | 72.5-72.9       |               |
| 74              |             |                                                                                                               |                 |       |                 |        |     |                 |               |
| 75              |             |                                                                                                               |                 |       |                 |        |     |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

LOCATION: Bayonne, NJ

GROUND SURFACE ELEVATION: +0.0±

NORTH: 692544.9

EAST: 622093.7

RIG TYPE: DK-50 (Barge Mounted)

DRILLING METHOD: Rotary wash with casing

CASING: 3.0" &amp; 4.0" I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL: NX Double Tube (2 1/8" I.D.)

SAMPLER (I.D. IN.): SS: Stand, Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

STARTED: 8-31-99

COMPLETED: 9-2-99

GROUTED ON: 9-2-99

CONTRACTOR: Warren George Inc.

## Boring No. MR-5U

## TIDE LEVELS

| DATE    | TIME  | ELEVATION<br>(FEET) |
|---------|-------|---------------------|
| 8-31-99 | 09:00 | +3.0                |
| 9-1-99  | 12:00 | +4.0                |
| 9-2-99  | 07:00 | +2.0                |

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION<br>(based on Burmister system)                                                                                  | CASING          |                                 | SPT<br>Bl/6 in. | SAMPLE |     |                 |               |
|-----------------|-------------|-----------------------------------------------------------------------------------------------------------------------------|-----------------|---------------------------------|-----------------|--------|-----|-----------------|---------------|
|                 |             |                                                                                                                             | Depth<br>(feet) | Bl/ft                           |                 | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 75              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 76              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 77              | SM          | SS-15 Same as SS-14                                                                                                         |                 | D<br>R<br>I<br>L<br>L<br>E<br>D | 34-100/5"       | SS     | 14  | 77.5-78.4       |               |
| 78              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 79              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 80              |             |                                                                                                                             |                 | A<br>H<br>E<br>A<br>D           |                 |        |     |                 |               |
| 81              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 82              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 83              | ML          | SS-16 Red brown micaceous SILT, some cf<br>Gravel, some weathered Shale fragments, trace f<br>Sand, trace Clay pockets      |                 | O<br>F                          | 19-19-56-67     | SS     | 16  | 83.0-85.0       |               |
| 84              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 85              |             |                                                                                                                             |                 | C<br>A<br>S<br>I<br>N<br>G      |                 |        |     |                 |               |
| 86              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 87              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 88              |             | 88.0', El. -88.0, Bottom of Glacial Till<br>Started coring into rock at 88.0', El. -88.0.<br>See Rock Coring Log on Page 5. |                 |                                 |                 |        |     |                 |               |
| 89              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 90              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 91              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 92              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 93              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 94              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 95              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 96              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 97              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 98              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 99              |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |
| 100             |             |                                                                                                                             |                 |                                 |                 |        |     |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

Boring No. MR-5U

LOCATION: Jersey City, NJ

STARTED: 8-31-99

GROUND SURFACE ELEVATION: + 0.0±

COMPLETED: 9-2-99

ROCK CORING

NORTH: 692544.9

EAST: 622093.7

GROUTED ON: 9-2-99

RIG TYPE: DK-50 (Barge Mounted)

CONTRACTOR: Warren George Inc.

DRILLING METHOD: Rotary wash with casing

CASING: 3.0" &amp; 4.0" I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL: NX Double Tube (2 7/8" I.D.)

SAMPLER (I.D. IN.): SS: Standard Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.): U: Shelby Tybe (2 7/8"), P: Piston 2 7/8"

| DEPTH<br>(feet) | DESCRIPTION AND REMARKS                                                                                                         | SAMPLE     |                            |               |            |            |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------|---------------|------------|------------|
|                 |                                                                                                                                 | Run<br>No. | Core<br>Rate<br>(min./ft.) | Rec.<br>(in.) | Rec<br>(%) | RQD<br>(%) |
| 88              | Run #2 88.0' to 93.0'<br>SHALE, gray red medium to fine grained, highly weathered to moderately weathered,<br>weak to very weak | 2          | 8<br>6<br>3<br>2<br>3      | 40            | 67         | 0          |
| 89              |                                                                                                                                 |            |                            |               |            |            |
| 90              |                                                                                                                                 |            |                            |               |            |            |
| 91              |                                                                                                                                 |            |                            |               |            |            |
| 92              |                                                                                                                                 |            |                            |               |            |            |
| 93              | (Core pieces ranging from fragments to 3" in length)                                                                            |            |                            |               |            |            |
| 94              | End of Boring at 93.0'<br>Borehole grouted upon completion of drilling.                                                         |            |                            |               |            |            |
| 95              |                                                                                                                                 |            |                            |               |            |            |
| 96              |                                                                                                                                 |            |                            |               |            |            |
| 97              |                                                                                                                                 |            |                            |               |            |            |
| 98              |                                                                                                                                 |            |                            |               |            |            |
| 99              |                                                                                                                                 |            |                            |               |            |            |
| 100             |                                                                                                                                 |            |                            |               |            |            |
| 101             |                                                                                                                                 |            |                            |               |            |            |
| 102             |                                                                                                                                 |            |                            |               |            |            |
| 103             |                                                                                                                                 |            |                            |               |            |            |
| 104             |                                                                                                                                 |            |                            |               |            |            |
| 105             |                                                                                                                                 |            |                            |               |            |            |
| 106             |                                                                                                                                 |            |                            |               |            |            |
| 107             |                                                                                                                                 |            |                            |               |            |            |
| 108             |                                                                                                                                 |            |                            |               |            |            |
| 109             |                                                                                                                                 |            |                            |               |            |            |
| 110             |                                                                                                                                 |            |                            |               |            |            |
| 111             |                                                                                                                                 |            |                            |               |            |            |
| 112             |                                                                                                                                 |            |                            |               |            |            |
| 113             |                                                                                                                                 |            |                            |               |            |            |

Design Unit C-41  
Geotechnical Report

Appendix 4  
Previous Test Borings By Others

Source: Jersey City Sewer Authority  
18 Series Borings



1. 11-13

FILL black ashes,  
cinders, sand,  
silt & gravel  
sizes.

16.5' (OH)  
Gray organic silty clay.

20.5' Peat layers.

21.5' Gray organic silt,  
little sand

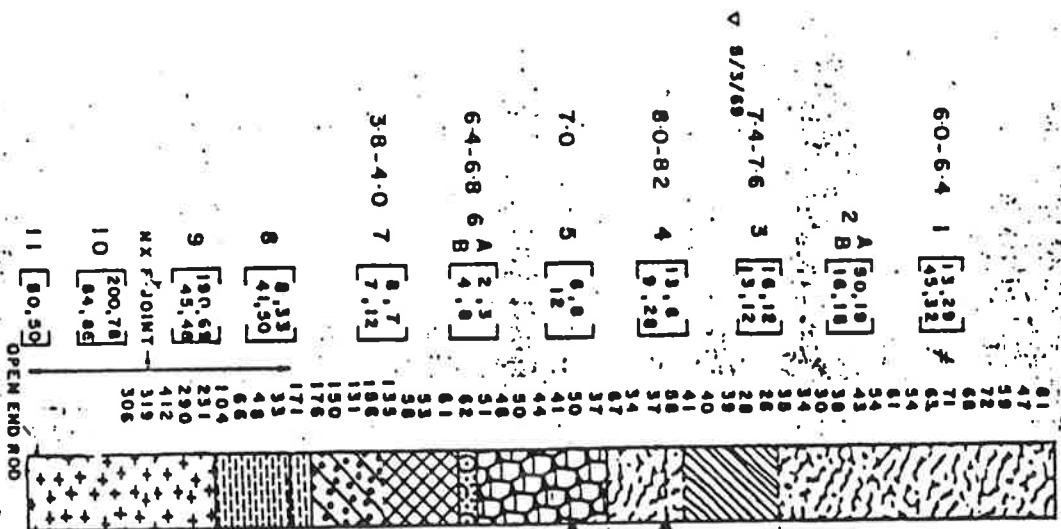
27' Gray F-C sand, some silt.

30.5' Red brn. clayey silt, (CL)  
some F-C sand, L.L. = 21.80  
trace - gravel. P.I. = 8.66

39.5' TILL diabase boulders,  
red brn. silt & F-C sand  
matrix.

49' Quartz Feldspar

52' Sandstone white to tan. seamy,  
high angle joints.  
57'



18-19

EL 19.41  
FILL black ashes,  
cinders, cobbley, sandy.

15' First water loss

20' Oyster shells/ash cinders  
21' Fill & shells

24' Compressed swamp mat with some silt  
matrix grading down to a brn. peat.

31' Brn. peat. EL -12.59  
32' Gray organic silt & F-M sand.  
Sand coarser downwards. (SM)

40' Greenish gray silt. (SM)  
41' Red brn. sand some silt some F-C gravel.

45' TILL, F-C gravel, and F-C sand, little  
silt (may include cobbles) (SM)

55' EL -35.59

18-19



18-4

silt,  
avel.

6-6-6-8 1 [3.2]  
[10.1]

at.

8-0-8-2 2 [3.4]  
[16.25]

mic silt

5-6-5-8 3 A [22.10]  
3 B [6.7]

sand & silt.

5-0-5-4 4 [1.2]  
[3.3]

its  
gravels.

4-6-5-0 5 [4.10]  
[13.12]

(SM)

6 A [9.8]  
8 [10.21]

7 [22.30]  
[10.22]

id & gravel with

[REF] + 300

MX1.4, 1.6 %

MX2.4, 1.6 %

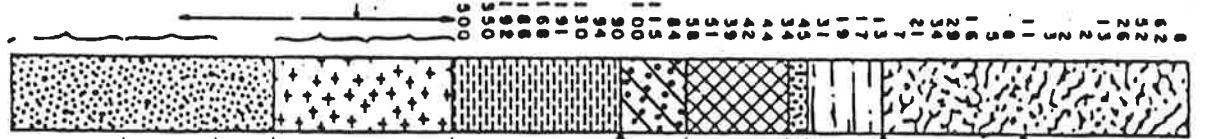
old spar Sandstone,  
table. Steep dips.

8 [31.47]  
[63.43]

MX3.6, 1.6 %

S = 9 300 lbs. on

MX4.6, 6.67 %



EL. 11-13

FILL black ashes,  
cinders, sand,  
silt & gravel  
sizes.

16-5' (OH)  
Gray organic silty clay.

20-5' Peat layers.  
21-5' Gray organic silt,  
little sand

27' Gray F-C sand, some silt.

30-5' Red brn. clayey silt, (CL)  
some F-C sand, L.L. = 21.80  
trace - gravel. P.L. = 8.66

39-5' TILL diabase boulders;  
red brn. silt & F-C sand  
matrix.

49' Quartz Feldspar

52' Sandstone white to tan, seamy,  
high angle joints.

63'

60-6-4 1 [11]  
[43]

80-8-2 4 [13.1]  
[9.1]

70 5 [9.8]  
[12]

64-6-8 6 A [2.1]  
B [4.8]

38-4-0 7 [9.1]  
[7.1]

8 [8.3]  
[41.3]

9 [130]  
[43]

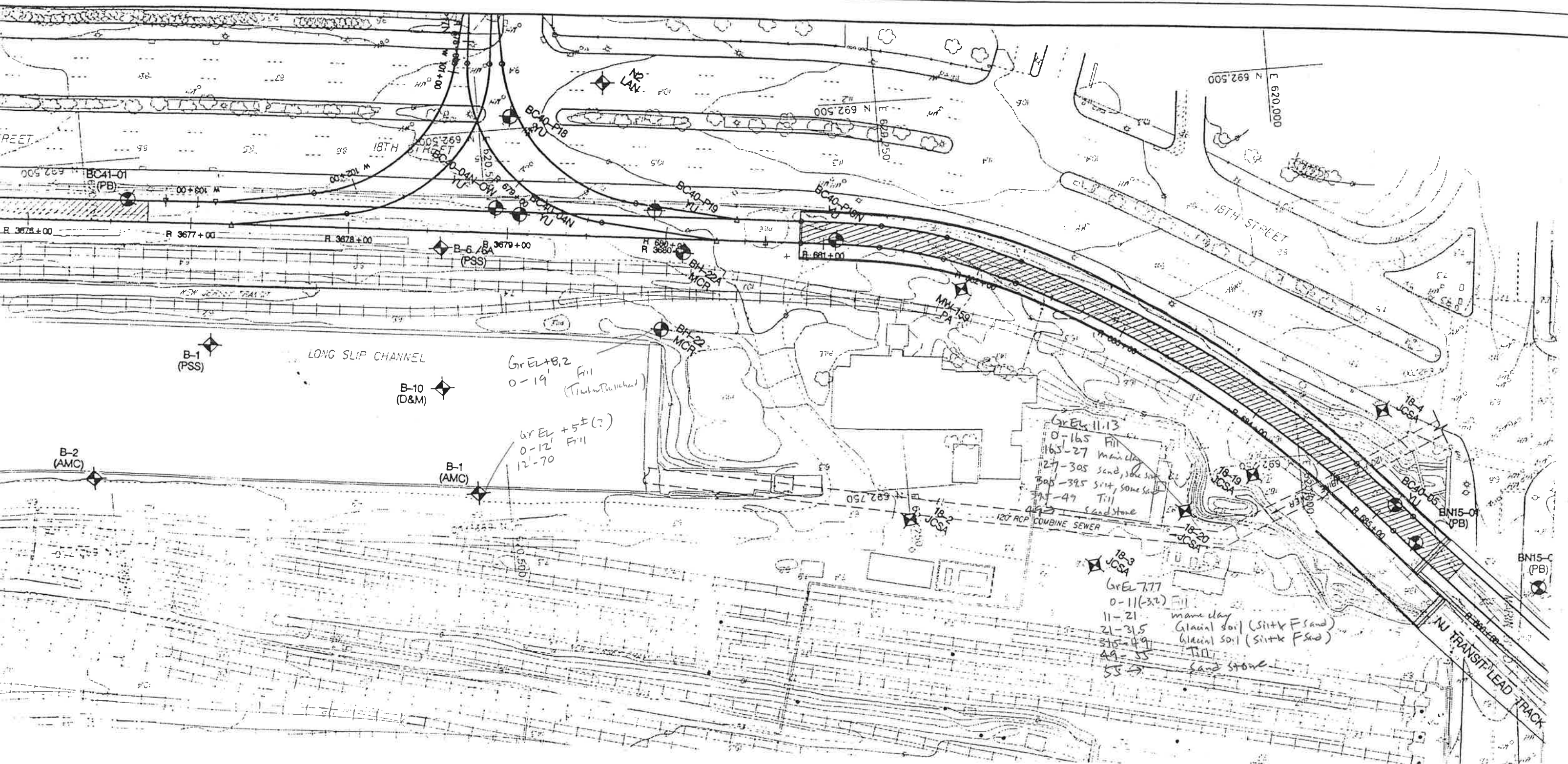
MX F-301

10 [200]  
[64.1]

11 [80.1]

18-4

W. P. to 25'



PROJECT NAME: Hudson-Bergen Light Rail Transit System  
 LOCATION: Jersey City, NJ  
 GROUND SURFACE ELEVATION:  
 NORTH:  
 RIG TYPE: Acker AD2 Truck Mounted  
 DRILLING METHOD: Rotary wash with casing  
 CASING: 4.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop  
 CORE BARREL: NX Double Tube (2 1/8" I.D.)  
 SAMPLER (I.D. IN.): SS: Stand. Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop  
 SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

Boring No. BC40-03

STARTED: 4/6/95  
 COMPLETED: 4/7/95  
 GROUTED ON: 4/10/95  
 CONTRACTOR: Jersey Boring & Drilling Co.

**DRAFT**

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION                                                                                                                                     | CASING          |       | SPT      | SAMPLE |            |                 |               |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------|----------|--------|------------|-----------------|---------------|
|                 |             |                                                                                                                                                 | Depth<br>(feet) | Bl/ft |          | Type   | No.<br>No. | Depth<br>(feet) | Rec.<br>(in.) |
| 25              |             | (based on Burmister system)                                                                                                                     |                 |       | Bl/6 in. |        |            |                 |               |
| 26              |             | U-2 Top: Dark brown PEAT, some Silt, trace f Sand, strong organic odor. Bottom: Light grey CLAYEY SILT, some f Sand, trace organic debris (wet) |                 |       | PUSHED   | U      | 2          | 25.0-27.0       | 24"           |
| 27              |             | SS-8 Light grey SILT and f Sand, trace organic debris (wet)                                                                                     |                 |       | 3-7-5    | SS     | 8          | 27.0-28.5       | 18"           |
| 28              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 29              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 30              |             | SS-9 Grey of SAND, some Silt stratified with grey Silty Clay (wet)                                                                              |                 |       | 23-9-6   | SS     | 9          | 30.0-31.5       | 5"            |
| 31              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 32              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 33              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 34              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 35              |             | SS-10 Light grey of SAND and Silt stratified with light grey Clayey Silt (moist to wet)                                                         |                 |       | 8-6-4    | SS     | 10         | 35.0-36.5       | 6"            |
| 36              |             | SS-11 Reddish brown f SAND and Silt stratified with Reddish brown Clayey Silt (wet)                                                             |                 |       | 0-0-0-0  | SS     | 11         | 36.5-38.0       | 13"           |
| 37              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 38              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 39              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 40              |             | SS-12 Reddish brown of SAND, trace Silt stratified with Reddish brown Clayey Silt, trace f Sand (6" to 8") (wet)                                |                 |       | 3-6-8    | SS     | 12         | 40.0-41.5       | 14"           |
| 41              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 42              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 43              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 44              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 45              |             | SS-13 Reddish brown of SAND, some Silt stratified with Reddish brown Clayey Silt, trace f Sand (6" to 8") (wet)                                 |                 |       | 15-27-25 | SS     | 13         | 45.0-46.5       | 16"           |
| 46              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 47              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 48              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 49              |             |                                                                                                                                                 |                 |       |          |        |            |                 |               |
| 50              |             | SS-14 Reddish brown of SAND, trace Silt (wet)                                                                                                   |                 |       | 14-14-14 | SS     | 14         | 50.0-51.5       | 12"           |

PROJECT NAME: Hudson-Bergen Light Rail Transit System  
 LOCATION: Jersey City, NJ  
 GROUND SURFACE ELEVATION: 47.95  
 NORTH: EAST:  
 RIG TYPE: Acker AD2 Truck Mounted  
 DRILLING METHOD: Rotary wash with casing  
 CASING: 4.0 inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop  
 CORE BARREL: NX Double Tube (2 1/8" I.D.)  
 SAMPLER (I.D. IN.): SS: Stand. Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop  
 SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

Boring No. BC40-03

**DRAFT**

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION                                              | CASING          |       | SPT        | SAMPLE |            |                                  |
|-----------------|-------------|----------------------------------------------------------|-----------------|-------|------------|--------|------------|----------------------------------|
|                 |             |                                                          | Depth<br>(feet) | BL/ft |            | Type   | No.<br>No. | Depth<br>(feet)<br>Rec.<br>(in.) |
| 50              |             | SS-14 Reddish brown cl SAND, trace Silt (wet)            |                 |       | 14-14-14   | SS     | 14         | 50.0-51.5 12"                    |
| 51              |             |                                                          |                 |       |            |        |            |                                  |
| 52              |             |                                                          |                 |       |            |        |            |                                  |
| 53              |             |                                                          |                 |       |            |        |            |                                  |
| 54              |             |                                                          |                 |       |            |        |            |                                  |
| 55              |             | SS-15 Reddish brown CLAYEY SILT, trace of Sand           |                 |       | 7-7-7      | SS     | 15         | 55.0-56.5 18"                    |
| 56              |             | (moist)                                                  |                 |       |            |        |            |                                  |
| 57              |             | U-0                                                      |                 |       | PUSHED     | U      | 0          | 56.5-58.5 0"                     |
| 58              |             |                                                          |                 |       |            |        |            |                                  |
| 59              |             |                                                          |                 |       |            |        |            |                                  |
| 60              |             | SS-16 Reddish brown to grey brown CLAYEY SILT,           |                 |       | 4-1-2      | SS     | 16         | 60.0-61.5 18"                    |
| 61              |             | trace f Sand, very soft (wet)                            |                 |       |            |        |            |                                  |
| 62              |             |                                                          |                 |       |            |        |            |                                  |
| 63              |             |                                                          |                 |       |            |        |            |                                  |
| 64              |             |                                                          |                 |       |            |        |            |                                  |
| 65              |             | SS-17 Reddish brown to grey brown CLAYEY SILT,           |                 |       | 11-15-19   | SS     | 17         | 65.0-66.5 17"                    |
| 66              |             | trace f Sand stratified with grey Clay (1") (wet)        |                 |       |            |        |            |                                  |
| 67              |             | P-0 Reddish brown to grey brown CLAYEY SILT, trace       |                 |       | 0-0-0-0    | P      | 0          | 65.5-67.3 9"                     |
| 68              |             | f sand (moist)                                           |                 |       |            |        |            |                                  |
| 69              |             | Hit obstruction at -67.25'                               |                 |       |            |        |            |                                  |
| 70              |             | SS-18 Reddish brown weathered rock friable to cl         |                 |       | 100/2"-0-0 | SS     | 18         | 70.0-70.3 2"                     |
| 71              |             | SAND, trace Silt                                         |                 |       |            |        |            |                                  |
| 72              |             | (Hard drilling -70.0' to -73.0', easy drilling -73.0' to |                 |       |            |        |            |                                  |
| 73              |             | -75.0')                                                  |                 |       |            |        |            |                                  |
| 74              |             |                                                          |                 |       |            |        |            |                                  |
| 75              |             | SS-19 Reddish brown CLAY & SILT, some of Sand            |                 |       | 34-100/8"  | SS     | 19         | 75.0-76.0 10"                    |
|                 |             | (moist)                                                  |                 |       |            |        |            |                                  |

156

PROJECT NAME: Hudson-Bergen Light Rail Transit System  
 LOCATION: Jersey City, NJ  
 GROUND SURFACE ELEVATION:  
 NORTH:  
 RIG TYPE: Acker AD2 Truck Mounted  
 DRILLING METHOD: Rotary wash with casing  
 CASING: 4.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop  
 CORE BARREL: NX Double Tube (2 1/8" I.D.)  
 SAMPLER (I.D. IN.): SS: Stand. Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop  
 SAMPLER (I.D. IN.): U: Shelby Tube (2 7/8"), P: Piston (2 7/8")

STARTED: 4/6/95  
 COMPLETED: 4/7/95  
 GROUTED ON: 4/10/95  
 CONTRACTOR: Jersey Boring & Drilling Co.

**DRAFT**

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION                                                                        | CASING          |       | SPT                             | SAMPLE |            |                 |               |
|-----------------|-------------|------------------------------------------------------------------------------------|-----------------|-------|---------------------------------|--------|------------|-----------------|---------------|
|                 |             |                                                                                    | Depth<br>(feet) | Bl/ft |                                 | Type   | No.<br>No. | Depth<br>(feet) | Rec.<br>(in.) |
| 75              |             | SS-19 Reddish brown CLAY & SILT, some cf Sand<br>(moist)                           |                 |       | Bl/6 in.<br>34-100/6"           | SS     | 19         | 75.0-76.0       | 10"           |
| 76              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 77              |             | (Rig chattered at ~77.0' to ~80.0')                                                |                 |       |                                 |        |            |                 |               |
| 78              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 79              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 80              |             | SS-20 Reddish brown SILT & CLAY, little to some cf<br>Sand, trace f Gravel (moist) |                 |       | 100/2+50/1**<br>*300 lb Hammer  | SS     | 20         | 80.0-80.3       | 3"            |
| 81              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 82              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 83              |             | (Hard drilling at ~82.5' (~12" obstruction)                                        |                 |       |                                 |        |            |                 |               |
| 84              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 85              | 3.5         | SS-21 Reddish brown weathered rock friable to mf<br>SAND, trace Silt               |                 |       | 100/1"+50/1**<br>*300 lb Hammer | SS     | 21         | 85.0-85.2       | 2"            |
| 86              | 3.0         |                                                                                    |                 |       |                                 |        |            |                 |               |
| 87              | 2.5         |                                                                                    |                 |       |                                 |        |            |                 |               |
| 88              | 3.5         |                                                                                    |                 |       |                                 |        |            |                 |               |
| 89              | 10.0        |                                                                                    |                 |       |                                 |        |            |                 |               |
| 90              |             | SS-22 Spinn refusal start coring rock                                              |                 |       | 100/0"                          | SS     | 22         | 90.0            | 0"            |
| 91              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 92              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 93              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 94              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 95              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 96              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 97              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 98              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 99              |             |                                                                                    |                 |       |                                 |        |            |                 |               |
| 100             |             |                                                                                    |                 |       |                                 |        |            |                 |               |

PROJECT NAME: Hudson-Bergen Light Rail Transit System

Boring No. BC40-03

LOCATION: Jersey City, NJ

STARTED: 4/6/95

GROUND SURFACE ELEVATION:

COMPLETED: 4/7/95

ROCK CORING

NORTH: EAST:

GROUTED ON: 4/10/95

RIG TYPE: Acker 82 (Truck Mounted)

CONTRACTOR: Jersey Boring & Drilling Co.

DRILLING METHOD: Core

CASING: 4.0 Inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

CORE BARREL: NXM double tube (2 1/8 Inch I.D.)

**DRAFT**

| DEPTH<br>(feet) | DESCRIPTION AND REMARKS                                                                                                                                                                                                                 | SAMPLE     |                            |               |            |            |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------|---------------|------------|------------|
|                 |                                                                                                                                                                                                                                         | Run<br>No. | Core<br>Rate<br>(min./ft.) | Rec.<br>(in.) | Rec<br>(%) | RQD<br>(%) |
| 90              | RUN #1 90.0' to 95.0'<br>Reddish brown with band of tan at ~91.7' turns to Light greenish brown at ~94.7' SANDSTONE, sound to slightly fractured, slightly weathered, strong to medium strong rock. Fracture spacing is extremely close | 1          | 4.0                        | 60            | 100        | 85         |
| 91              |                                                                                                                                                                                                                                         |            | 3.5                        |               |            |            |
| 92              |                                                                                                                                                                                                                                         |            | 3.0                        |               |            |            |
| 93              |                                                                                                                                                                                                                                         |            | 3.25                       |               |            |            |
| 94              |                                                                                                                                                                                                                                         |            | 3.0                        |               |            |            |
| 95              | End of Boring at 95.0'                                                                                                                                                                                                                  |            |                            |               |            |            |
| 96              | Borehole grouted upon completion of drilling                                                                                                                                                                                            |            |                            |               |            |            |
| 97              |                                                                                                                                                                                                                                         |            |                            |               |            |            |
| 98              |                                                                                                                                                                                                                                         |            |                            |               |            |            |
| 99              |                                                                                                                                                                                                                                         |            |                            |               |            |            |
| 100             |                                                                                                                                                                                                                                         |            |                            |               |            |            |
| 101             |                                                                                                                                                                                                                                         |            |                            |               |            |            |
| 102             |                                                                                                                                                                                                                                         |            |                            |               |            |            |
| 103             |                                                                                                                                                                                                                                         |            |                            |               |            |            |



# BORING LOG

**Douglas, Inc.**

PROJECT: Hudson Bergen Light Rail Train System

LOCATION: observer Hwy and willow St. Hoboken, N.J.

CLIENT: NJ Transit

CONTRACTOR: Jersey Boring and Drilling

DRILLER: Tim/wayne

INSPECTOR: Eric Svendsen - Matrix Environmental Mgmt. Inc.

DRILLING METHOD: Mud Boller Bit

RIG TYPE: AD II  
ACTO: A  
TICK MOUNTED

| Coring | Soft Spoon | Shelby Tube | Piston | Denison | Core Barrel |
|--------|------------|-------------|--------|---------|-------------|
|--------|------------|-------------|--------|---------|-------------|

[illegible]



Parsons  
Brinckerhoff  
Quade &  
Douglas, Inc.

# BORING LOG

(continued)

BORING NUMBER: BC 40-12

SHEET NUMBER: 2 OF 2

PROJECT NUMBER: 4739-1420-03

DRILLER: JBD

INSPECTOR: Eric Svendsen- Matrix

SUBJECT: Hudson Bergen Light Rail Train System

LOCATION: Observer Hwy + Willow St., Hoboken, N.J.

| DEPTH (FT) | GRAPHIC LOG | CASING (BLOWS/FT) | SAMPLE |        | SOIL (BLOWS/6 in.) |            |      |      |       |       | CORING     |          | Depth Elev. | FIELD CLASSIFICATION AND REMARKS |                                             |         |
|------------|-------------|-------------------|--------|--------|--------------------|------------|------|------|-------|-------|------------|----------|-------------|----------------------------------|---------------------------------------------|---------|
|            |             |                   | TYPE   | NUMBER | SYMBOL             | DEPTH (FT) | O/G  | 6/12 | 12/18 | 18/24 | REC. (in.) | REC. (%) |             |                                  | L > 4" (in.)                                | ROD (%) |
|            |             |                   |        |        |                    |            |      |      |       |       |            |          |             |                                  |                                             |         |
|            |             |                   |        |        |                    |            |      |      |       |       |            |          |             |                                  |                                             |         |
| 25         |             |                   |        |        |                    |            |      |      |       |       |            |          |             |                                  |                                             |         |
| 29         |             |                   | SS-9   |        |                    |            | 29   | 3    | 7     | 13    | 15         |          |             |                                  | 29' to 29.5' Gray silty clay                |         |
| 30         |             |                   |        |        |                    |            | 30.5 |      |       |       |            |          |             |                                  | 29.5 to 30' PEAT                            |         |
| 30.5       |             |                   |        |        |                    |            |      |      |       |       |            |          |             |                                  | 30' to 30.5' Gray cmf SAND, some silt.      |         |
| 35         |             |                   | SS10   |        |                    |            | 35   | 6    | 5     | 7     | 10         |          |             |                                  | 35 to 36.5 SAME (gray cmf SAND, some silt)  |         |
| 40         |             |                   | SS11   |        |                    |            | 40   | 10   | 15    | 28    | 10         |          |             |                                  | 40 to 41.5 SAME                             |         |
| 45         |             |                   | SS12   |        |                    |            | 45   | 52   | 100   |       | 4"         |          |             |                                  | 44' Drilling became harder.                 |         |
| 45.7       |             |                   |        |        |                    |            | 45.7 |      |       |       |            |          |             |                                  | 45' to 45.7' Red Brown cmf SAND, L.H. silt. |         |
| 50         |             |                   | SS13   |        |                    |            | 50   | 31   | 20    | 27    | 12"        |          |             |                                  | 50 to 51.5 Red Brown cmf SAND, trace silt   |         |
| 51.5       |             |                   |        |        |                    |            |      |      |       |       |            |          |             |                                  | End Boring 51.5'                            |         |

DRAFT

160

Boring No.

Sheet

of





Parsons  
Brinckerhoff  
Quade &  
Douglas, Inc.

## BORING LOG

(continued)

BORING NUMBER: BC 40-14  
SHEET NUMBER: 2 OF 2  
PROJECT NUMBER: 4739-1420-0

SUBJECT: Hudson Bergen Light Rail Train System

LOCATION: Hoboken, N.J.

DRILLER: JBD - Tim Van Ness  
INSPECTOR: Eric Svendsen - Mott

| FIELD CLASSIFICATION AND REMARKS               |             |                                       |        |        |                       |            |     |           |            |          |             |                                                                       |         |
|------------------------------------------------|-------------|---------------------------------------|--------|--------|-----------------------|------------|-----|-----------|------------|----------|-------------|-----------------------------------------------------------------------|---------|
| DEPTH (FT)                                     | GRAPHIC LOG | CASING (BLOWS/FT)<br>CORING (MIN./FT) | SAMPLE |        | SOIL (BLOWS/6 in.)    |            |     |           |            |          | Depth Elev. |                                                                       |         |
|                                                |             |                                       | TYPE   | NUMBER | SYMBOL                | DEPTH (FT) | O/G | CORING    |            |          |             |                                                                       |         |
|                                                |             |                                       |        |        |                       |            |     | RUN (in.) | REC. (in.) | REC. (%) |             | L>4" (in.)                                                            |         |
|                                                |             |                                       |        |        |                       |            |     |           |            |          |             |                                                                       | RQD (%) |
| 25                                             |             | Mud                                   | S      | S10    | <del>25</del><br>31.5 | 2          | 2   | 2         |            |          | 18          | Gray MF SAND, trace silt.                                             |         |
| 30                                             |             |                                       | S      | S11    | <del>30</del><br>31.5 | 9          | 10  | 10        |            |          | 16          | Same as above                                                         |         |
| 35                                             |             |                                       | S      | S12    | <del>35</del><br>36.5 | 6          | 9   | 14        |            |          | 16          | Same as above                                                         |         |
| 40                                             |             |                                       | S      | S13    | <del>40</del><br>41.5 | 35         | 22  | 30        |            |          | 4'          | 48' Hard Drilling<br>Red Brown cmf SAND, and MF Gravel<br>Trace silt. |         |
| 45                                             |             |                                       | S      | S14    | <del>45</del><br>46.5 | 14         | 17  | 40        |            |          | 3           | Red Brown MF SAND, Little claysilt, trace f Gravel                    |         |
| 50                                             |             |                                       | S      | S15    | <del>50</del><br>51.5 | 33         | 22  | 43        |            |          | 6           | Red Brown MF SAND, trace silt, trace MF Gravel                        |         |
| 55                                             |             |                                       |        |        |                       |            |     |           |            |          |             | End Boring 51.5'                                                      |         |
| 60                                             |             |                                       |        |        |                       |            |     |           |            |          |             |                                                                       |         |
| NOTE: No pre-drilling instruction sheet given. |             |                                       |        |        |                       |            |     |           |            |          |             |                                                                       |         |
| Boring No. _____                               |             |                                       |        |        |                       |            |     |           |            |          |             | Sheet _____ of _____                                                  |         |
| 162                                            |             |                                       |        |        |                       |            |     |           |            |          |             |                                                                       |         |

NOTE: No pre-drilling instruction sheet given.

162

Boring No. \_\_\_\_\_ Sheet \_\_\_\_\_ of \_\_\_\_\_



Parsons  
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Quade &  
Douglas, Inc.

# BORING LOG

BORING NUMBER: BC 40-14  
SHEET NUMBER: 1 OF 2

PROJECT NUMBER: 4739-1420-03

PROJECT: Hudson Bergen Light Rail Train System

LOCATION: Hoboken, N.J.

CLIENT: NJ Transit

CONTRACTOR: Jersey Boring and Drilling

DRILLER: Tim/Wayne

INSPECTOR: Eric Svendsen - Motive Environmental Mgmt. Inc.

DRILLING METHOD: Hand Bored Bit

RIG TYPE: Acker ADT Truck Mounted

LOCATION: Hoboken N.J.

N:

SURFACE ELEV.: E:

DATUM: Sea Level

START DATE: 4-4-95 TIME: 9:00

FINISH DATE: 4-5-95 TIME: 11:30

| Type/Symbol | Casing    | Split Spoon | Shelby Tube | Parton | Division | Core Barrel | GROUNDWATER DATA |       |             |              |
|-------------|-----------|-------------|-------------|--------|----------|-------------|------------------|-------|-------------|--------------|
|             |           |             |             |        |          |             | Date             | Time  | Water Depth | Casing Depth |
| I.D.        | 4" AS     | S           | U           | PN     | D        | C           | 4-4-95           | 10:00 | 7.0'        | 4.5'         |
| O.D.        | 4 1/2" AS | S           | 2 1/4"      | NA     | NA       | 2 1/8"      | 4-4-95           | 10:00 | 7.0'        | 4.5'         |
| Length      | 5'        | S           | 24          | U      | U        | 3"          | 4-5-95           | 11:15 | 10.5'       | 9'           |
| Hammer Wt.  | 300 lbs   | ND          | 14 lbs      |        |          |             |                  |       |             |              |
| Hammer Fall | 30"       | S           | 30"         |        |          |             |                  |       |             |              |

| DEPTH (FT) | GRAPHIC LOG | CASING (BLOWS/FT) |        | CORING (MIN./FT) | SAMPLE |            |     | SOIL (BLOWS/6 IN.) |            |          |            |         | FIELD CLASSIFICATION AND REMARKS |
|------------|-------------|-------------------|--------|------------------|--------|------------|-----|--------------------|------------|----------|------------|---------|----------------------------------|
|            |             | TYPE              | NUMBER |                  | SYMBOL | DEPTH (FT) | O/S | CORING             |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     | RUN (in.)          | REC. (in.) | REC. (%) | L>4" (in.) | ROD (%) |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |
|            |             |                   |        |                  |        |            |     |                    |            |          |            |         |                                  |

FIELD CLASSIFICATION AND REMARKS

5' to 25' Black CMF SAND, trace silt (fill)

SAME as above

Same 2 attempts with 2" split spoon (no recovery) tried to get thru 4" recovery

Gray CMF SAND, some silty clay, traces of gravel

Black silty clay PPV = 2.5/16 = 0.156

Gray CMF SAND, trace silt

Note: Initially pushed Shelby tube from 10.5 to 12.5'. No Recovery. Drove 2" Split Spoon.

Gray silty clay

Gray silty clay (with shell frags) Same with f Sand



Parsons  
Brinckerhoff  
Quade &  
Douglas, Inc.

# BORING LOG

(continued)

BORING NUMBER: BC 40-14  
SHEET NUMBER: 2 OF 2  
PROJECT NUMBER: 4739-1420-03

PROJECT: Hudson Bergen Light Rail Train System

LOCATION: Hoboken, N.J.

DRILLER: JBD - Tim VanNess  
INSPECTOR: Eric Svendsen - Matrix

DRAFT

| DEPTH (FT) | GRAPHIC LOG | CASING (BLOWS/FT) | SAMPLE |        |        | SOIL (BLOWS/6 in.) |     |      |       |       |            | CORING | Depth Elev. | FIELD CLASSIFICATION AND REMARKS                                      |           |            |          |            |         |
|------------|-------------|-------------------|--------|--------|--------|--------------------|-----|------|-------|-------|------------|--------|-------------|-----------------------------------------------------------------------|-----------|------------|----------|------------|---------|
|            |             |                   | TYPE   | NUMBER | SYMBOL | DEPTH (FT)         | O/G | 6/12 | 12/18 | 18/24 | REC. (in.) |        |             |                                                                       |           |            |          |            |         |
|            |             |                   |        |        |        |                    |     |      |       |       |            |        |             |                                                                       | RUN (in.) | REC. (in.) | REC. (%) | L>4" (in.) | ROD (%) |
|            |             |                   |        |        |        |                    |     |      |       |       |            |        |             |                                                                       |           |            |          |            |         |
| 25         |             | Mud               | S      | S10    |        | 25<br>31.5         | 2   | 2    | 2     |       |            |        | 14          | Gray MF SAND, trace silt.                                             |           |            |          |            |         |
| 30         |             |                   | S      | S11    |        | 30<br>31.5         | 9   | 10   | 10    |       |            |        | 16          | Same as above                                                         |           |            |          |            |         |
| 35         |             |                   | S      | S12    |        | 35<br>36.5         | 6   | 9    | 14    |       |            |        | 16          | Same as above                                                         |           |            |          |            |         |
| 40         |             |                   | S      | S13    |        | 40<br>46.5         | 35  | 22   | 30    |       |            |        | 4'          | 48' Hard Drilling<br>Red Brown CMF SAND, and MF Gravel<br>Trace silt. |           |            |          |            |         |
| 45         |             |                   | S      | S14    |        | 45<br>46.5         | 14  | 17   | 40    |       |            |        | 3           | Red Brown MF SAND, Little clay silt, trace f Gravel                   |           |            |          |            |         |
| 50         |             |                   | S      | S15    |        | 50<br>51.5         | 33  | 22   | 43    |       |            |        | 6           | Red Brown MF SAND, trace silt, trace MF Gravel                        |           |            |          |            |         |
| 55         |             |                   |        |        |        |                    |     |      |       |       |            |        |             | End Boring 51.5'                                                      |           |            |          |            |         |
| 60         |             |                   |        |        |        |                    |     |      |       |       |            |        |             |                                                                       |           |            |          |            |         |

164

Boring No. \_\_\_\_\_ of \_\_\_\_\_

Sheet \_\_\_\_\_ of \_\_\_\_\_

NOTE: No pre-drilling instruction sheet given.

NOTE: No pre-drilling instruction sheet given.



# BORING LOG

DRAWING NUMBER: BC40-17  
 SHEET NUMBER: 1 OF 1  
 PROJECT NUMBER: 75148

|                                      |                                |
|--------------------------------------|--------------------------------|
| PROJECT: HOLETS                      | LOCATION: River St & Newark St |
| LOCATION: Hoboken, NJ                | N: E:                          |
| CLIENT: NJ Transit                   | SURFACE ELEVATION: 410         |
| CONTRACTOR: Jersey Boring & Drilling | DATUM:                         |
| DRILLER: Carlos Tirado               |                                |
| INSPECTOR: Kenneth Huber             |                                |

|                              |                     |            |
|------------------------------|---------------------|------------|
| DRILLING METHOD: Rotary Wash | START DATE: 4/5/95  | TIME: 9:15 |
| RIG TYPE: Acker AD-II        | FINISH DATE: 4/5/95 | TIME: 9:45 |

| Type/Symbol | Casing | Soft Suction | Shallow Tube | Parton      | Dimension       | Core Barrel | Core Length | Core Diameter |
|-------------|--------|--------------|--------------|-------------|-----------------|-------------|-------------|---------------|
| I.D.        | S 3    |              | U III        | P N         | C II            | C III       | 3000        | 3000          |
| O.D.        | 2 1/4" |              |              |             |                 |             | 3000        | 3000          |
| Length      | 3"     |              |              |             |                 |             | 3000        | 3000          |
| Hammer Vt.  | 2 1/4" |              |              |             |                 |             | 3000        | 3000          |
| Hammer Fall | 140 #  |              |              |             | NW              |             | 3000        | 3000          |
|             | 30"    |              |              | I.D. (C.D.) | 2 1/4" (2 5/8") |             | 3000        | 3000          |

[illegible]

\$ 30015, Harms

3" Sampler was used

[illegible]

END OF BORING @ 1.0 ft  
Moved boring 27.5 ft south to  
avoid possible utility.



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# BORING LOG

BORING NUMBER: 8040-17A

SHEET NUMBER: 1 OF 1

PROJECT NUMBER: 7514/8

PROJECT: H8 LRTS

LOCATION: Hoboken, NJ

CLIENT: N.J. Transit

CONTRACTOR: Jersey Boring & Drilling

DRILLER: Carlos Tirado

INSPECTOR: Kenneth Huber

DRILLING METHOD: Rotary Wash

RIG TYPE: Acker AD-11

LOCATION: Newark St. & River St.

N:

SURFACE ELEV.: 11.42

DATUM:

START DATE: 4/15/95 TIME: 10:00

FINISH DATE:

GROUNDWATER DATA

| TYPE/Symbol | NW     | HW     | S   | U   | III    | IV | VI | Core Entry     |
|-------------|--------|--------|-----|-----|--------|----|----|----------------|
| I.D.        | 3"     | 4"     | 12" | 13" | 2 1/2" |    |    | 2 1/2"         |
| O.D.        | 3 1/2" | 4 1/2" | 3"  | 2"  | 3"     |    |    | 3"             |
| Length      | 5 ft   | 24"    | 30" |     |        |    |    | 5 ft           |
| Hammer Wt.  | 300#   | 140#   |     |     |        |    |    | 140#           |
| Hammer Fall | 30"    | 30"    |     |     |        |    |    | 2 1/4" (25 ft) |

Notes:

\* 2nd sample at same depth attempted

FIELD CLASSIFICATION AND REMARKS

\* 3" Sampler

Depth Elev.

Drilled thru 4" Gravel, 2" of m. Gravel.

Brown of SAND, little at Gravel, trace

Gravel (most c. Gravel)

Brown of SAND, little c. m. Gravel (C. Gravel)

2-2" brick pieces in tip

Switched to 2 1/2" freeze roller bit

Spun in Gravel, little of Sand, 1st

attempt 0" heavy 2nd attempt 1" heavy

4" Brown m. Gravel, little of Sand

over 2" brown S/LT, little m. Gravel

trace of Sand

Gravel c. GRAVEL, trace S/LT, trace

with Sand, 1st attempt 0" heavy, 2nd attempt

1" heavy, 3rd attempt 2" heavy

Brown & SILT, some m. Gravel

6" Brown S/LT over 2" Brown m. Gravel

and m. Gravel over 3" piece of wood

Drilled thru 6" of wood

1st wood, second attempt made 0"

heavy

8" Brown S/LT and 4" Sand, some

very fine m. Gravel, 3" gravel, 1st S/LT

and 1st S/LT

Gravel & S/LT, 2nd attempt made

0" heavy

Brown of SAND, trace 3" gravel, 1st

heavy, 2nd attempt made

Black & GRAVEL, little S/LT, 2nd

attempt made

1st attempt made

2nd attempt made

3rd attempt made

4th attempt made



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## BORING LOG

(continued)

BORING NUMBER: BCD-17A  
SHEET NUMBER: 2 OF 3  
PROJECT NUMBER: 75148

SUBJECT: HBLRTS

LOCATION: Hoboken, NJ

DRILLER: Carlos Tirado

INSPECTOR: Kenneth Huber

| GRAPHIC LOG |  | CASING (BLOWS/FT) |  | SAMPLE |  | SOIL (BLOWS/6 in.) |  |  |  |  | FIELD CLASSIFICATION AND REMARKS |  |
|-------------|--|-------------------|--|--------|--|--------------------|--|--|--|--|----------------------------------|--|
|             |  |                   |  |        |  | CORING             |  |  |  |  |                                  |  |
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|             |  |                   |  |        |  |                    |  |  |  |  |                                  |  |

## CORING LOG

(continued)

BOHRING NUMBER:

SHEET NUMBER: 3 OF 3

PROJECT NUMBER: 75148

ECT

HBLRFS

TION:

Hoboken, NJ

DRILLER: Carlos Tirado

INSPECTOR: *Kearse 11.1.1*

| INSPECTOR: Kenneth Huber |             | DISCONTINUITY DATA |     | WEATHERING | STRENGTH | DESCRIPTION AND REMARKS<br>(Lithology, Structure, Weathering, Continuity, Strength, Color, Grain Size)                                                   | SAMPLE         |              |         |
|--------------------------|-------------|--------------------|-----|------------|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------|---------|
| DEPTH (FT)               | ANGLE (deg) | Jr                 | Ja  |            |          |                                                                                                                                                          | RECOVERY (in.) | RECOVERY (%) | RQD (%) |
| 40.2                     | 0°          | 1.5                | 2.0 | 40.8       | II       | Greenish-grey SERPENTINE, fine grained, sound to slightly fractured, slightly weathered, strong to very strong rock, fractures show slight discoloration |                |              |         |
| 42.2                     | 35°         | 1.0                | 1.0 | 42.2       |          |                                                                                                                                                          |                |              |         |
| 43.05                    | 15°         | 1.5                | 2.0 | 43.05      |          |                                                                                                                                                          |                |              |         |
| 43.3                     | 60°         | 1.5                | 2.0 | 43.3       |          |                                                                                                                                                          |                |              |         |
| 44.45                    |             |                    |     | 44.45      |          |                                                                                                                                                          |                |              |         |



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# BORING LOG

BORING NUMBER: *NH-01*

SHEET NUMBER: *1* OF *1*

PROJECT NUMBER: *4939-1420-03*

LOCATION:

N: E:

SURFACE ELEV.: *+/- 5 feet*  
DATUM: *500 Level*

START DATE: *5/23/95* TIME: *0945*

FINISH DATE: *5/23/95* TIME: *1015*

## GROUNDWATER DATA

| Date           | Time        | Water Depth  | Casing Depth | Soil Depth |
|----------------|-------------|--------------|--------------|------------|
| <i>5/23/95</i> | <i>1015</i> | <i>7.53'</i> | <i>—</i>     | <i>9'</i>  |

PROJECT: *Hudson Bergen Light Rail Train System*  
LOCATION: *FRANK SINATRA DRIVE, Hoboken, NJ*  
CLIENT: *NJ Transit*  
CONTRACTOR: *Jesse Boring and Drilling McClymont and Rak*  
DRILLER: *Jim Velecki's*  
INSPECTOR: *John Mocco Matrix*  
DRILLING METHOD: *Must Boring Bit Hollow Stem Auger*  
BIG TYPE: *Mobile D40L Truck Mount*

Type/Symbol

D.

D.D.

Length

Hammer Wt.

Hammer Fall

| Casing         | Spit Spoon     | Shelby Tube           | Piston   | Deviation | Core Barrel   |
|----------------|----------------|-----------------------|----------|-----------|---------------|
| <i>HWS</i>     | <i>S</i>       | <i>U</i>              | <i>P</i> | <i>D</i>  | <i>C</i>      |
| <i>4"</i>      | <i>1 7/8"</i>  | <i>—</i>              | <i>—</i> | <i>—</i>  | <i>2 1/8"</i> |
| <i>4 1/2"</i>  | <i>2"</i>      | <i>—</i>              | <i>—</i> | <i>—</i>  | <i>3"</i>     |
| <i>5'</i>      | <i>0'</i>      | <i>—</i>              | <i>—</i> | <i>—</i>  | <i>7.5'</i>   |
| <i>300 lbs</i> | <i>140 lbs</i> | <i>Drill Rod Size</i> |          |           |               |
| <i>30"</i>     | <i>30"</i>     | <i>I.B. (O.D.)</i>    |          |           |               |
|                |                | <i>NW</i>             |          |           |               |
|                |                | <i>2 1/4" (238")</i>  |          |           |               |

| DEPTH (FT) |  | GRAPHIC LOG | CASING (BLOWS/FT)<br>(MIN./FT) | SAMPLE |        |        | SOIL (BLOWS/6 in.) |               |             |               |            | FIELD CLASSIFICATION AND REMARKS |                                                                                           |               |
|------------|--|-------------|--------------------------------|--------|--------|--------|--------------------|---------------|-------------|---------------|------------|----------------------------------|-------------------------------------------------------------------------------------------|---------------|
|            |  |             |                                | TYPE   | NUMBER | SYMBOL | DEPTH (FT)         | O/S           | 6/12        | 12/18         | 18/24      |                                  |                                                                                           | REC.<br>(in.) |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        | RUN<br>(in.)       | REC.<br>(in.) | REC.<br>(%) | L>4°<br>(in.) | ROD<br>(%) | Depth<br>Elev.                   |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             | H                              | S      | 5-1    |        | 1.505              | 8             | 16          | 14            | —          | 12                               | 0-1' AophaH<br>1'-2' Black m. SAND, little clay silt (organic)<br>trace of gravel, moist. |               |
|            |  |             | L                              | S      | 5-2    |        | 3.33               | 5             | 5           | 7             | 6          | 4                                | 2'-3' Green m. SAND, little silt, moist                                                   |               |
|            |  |             | L                              | S      | 5-3    |        |                    |               |             |               |            |                                  | 3'-7' Green m. SAND, some clay gravel,<br>little silt, dry                                |               |
|            |  |             | L                              | S      | 5-3    |        | 5-5.5              | 2             | 5           | 3             | 3          | 6                                | 7'-9' Green m. SAND, some clay gravel,<br>little clay silt, wet                           |               |
|            |  |             | S                              | S      | 5-4    |        | 7-8                | 3             | 4           | 10            | 20         | 12                               | 9'-9.1' Green mottled loess                                                               |               |
|            |  |             | T                              | S      | 5-5    |        | 9-9.1              | 50 1/2        | —           | —             | —          | 1                                |                                                                                           |               |
|            |  |             | H                              | S      | 5-5    |        |                    |               |             |               |            |                                  | EDTB 9.1'                                                                                 |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
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|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
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|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
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|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |
|            |  |             |                                |        |        |        |                    |               |             |               |            |                                  |                                                                                           |               |



Parsons  
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Quade &  
Douglas, Inc.

# BORING LOG

BORING NUMBER: NA-02

SHEET NUMBER: 1 OF 1

PROJECT NUMBER: 4739-180-03

PROJECT: Hudson Bergen Light Rail Train System

LOCATION: Port Imperial, Newark, NJ

CLIENT: NJ Transit

CONTRACTOR: McClymont and Rite

DRAWN: Ed Angeles

INSPECTOR: John Moco - Matrix

DRIILLING METHOD: ~~Hand~~ Hollow Stem Auger / Manual Logging

LOG TYPE: Mobile Truck Mount

DRAFT

LOCATION: Port Imperial

N:

SURFACE ELEV.: —

DATUM:

START DATE: 5/15/95 TIME: 0900

FINISH DATE: 5/16/95 TIME: 1600

| Type/Symbol | GROUNDWATER DATA |      |             |              |
|-------------|------------------|------|-------------|--------------|
|             | Date             | Time | Water Depth | Casing Depth |
| D.D.        | 5/15/95          | 1300 | 8.3'        | 11'          |
| D.D.        | 5/16/95          | 1530 | 8.6'        | 11'          |
| length      |                  |      |             |              |
| hammer Wt.  |                  |      |             |              |
| hammer Fall |                  |      |             |              |

| DEPTH (FT) | GRAPHIC LOG | Casing (blows/ft) |        | Coring (min./ft) |            | SAMPLE    |            | SOIL (BLOWS/6 in.) |            |         |            |             |                                                                              | FIELD CLASSIFICATION AND REMARKS |  |
|------------|-------------|-------------------|--------|------------------|------------|-----------|------------|--------------------|------------|---------|------------|-------------|------------------------------------------------------------------------------|----------------------------------|--|
|            |             | TYPE              | NUMBER | SYMBOL           | DEPTH (FT) | RUN (in.) | REC. (in.) | REC. (%)           | L>4" (in.) | ROD (%) | REC. (in.) | Depth Elev. |                                                                              |                                  |  |
|            |             |                   |        |                  |            |           |            |                    |            |         |            |             |                                                                              |                                  |  |
| 5          |             | Drop              | S-1    |                  | 0-2        | 27        | 23         | 34                 | 25         | 15      | 9          | 2           | 2' 0" 6" Brown f-sand, little clayey silt, moist, cinders, sing, 20%, (fill) |                                  |  |
|            |             | Drop              | S-2    |                  | 2-4        | 7         | 5          | 5                  | 6          | 13      | 0          | 2           | 2' 0" 6" Brown f-sand, little clayey silt, moist, mottled                    |                                  |  |
|            |             | Drop              | S-3    |                  | 4-6        | 7         | 5          | 5                  | 6          | 13      | 0          | 2           | 3' 0" 6" Brown f-sand, little clayey silt, moist, mottled                    |                                  |  |
|            |             | Drop              | S-4    |                  | 6-8        | 7         | 5          | 5                  | 6          | 13      | 0          | 2           | 3' 0" 6" Brown f-sand, little clayey silt, moist, mottled                    |                                  |  |
|            |             | Drop              | S-5    |                  | 8-10       | 1         | 2          | 2                  | 4          | 2       | 2          | 2           | 8' 0" 6" Orange Brown f-sand, some clayey silt, moist                        |                                  |  |
| 10         |             | Drop              | S-6    |                  | 10-12      | 6         | 8          | 9                  | 20         | 16      | 16         | 16          | 10' 0" 6" Brownish clay, little clayey silt, moist, mottled                  |                                  |  |
| 15         |             | M                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | V                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | D                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | R                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | O                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | T                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | A                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | R                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | P                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             | V                 |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |
|            |             |                   |        |                  |            |           |            |                    |            |         |            |             | 11' 0" 6" Reddish Brown f-sand, little clayey silt, moist, mottled           |                                  |  |

Sum-c

171

02' 00TB



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Douglas, Inc.

# BORING LOG

BORING NUMBER: NA-03  
SHEET NUMBER: 1 OF  
PROJECT NUMBER:

PROJECT: WLGATS

LOCATION: 15th ST AND WASHINGTON

CLIENT: NCTRAVISIT

CONTRACTOR: JENSEN DRILLING AND GEORING

DRILLER: PEDRO VALENZUELA

INSPECTOR: PETER TANI

DRILLING METHOD: AUGERS

RIG TYPE: ACKER-8ZAD (3" ROD MOUNTED)

DRAFT

LOCATION:

COORD. N:

STN. NO.:

SURFACE ELEV.:

DATUM:

E:

OFFSET:

START DATE: 6/17/95 TIME: 8:30 AM

FINISH DATE: 6/17/95 TIME: 11:00 AM

## GROUNDWATER DATA

| Date    | Time  | Water Depth | Casing Depth | Moisture Depth |
|---------|-------|-------------|--------------|----------------|
| 6/17/95 | 10:45 | 7.5'        | 17'          | 19'            |

Drill Rod Size  
I.D. (O.D.)

A W - Reds

| DEPTH (FT)                       | CASING (BLOWS/FT) | CORING (MIN./FT) | SAMPLE |        |        |            | SOIL (BLOWS/6 in.) |           |            |          |            | Depth Elev. |              |         |
|----------------------------------|-------------------|------------------|--------|--------|--------|------------|--------------------|-----------|------------|----------|------------|-------------|--------------|---------|
|                                  |                   |                  | TYPE   | NUMBER | SYMBOL | DEPTH (FT) | O/6                | CORING    |            |          | REC. (in.) |             |              |         |
|                                  |                   |                  |        |        |        |            |                    | RUN (in.) | REC. (in.) | REC. (%) |            |             | L > 4" (in.) | RQD (%) |
|                                  |                   |                  |        |        |        |            |                    |           |            |          |            |             |              |         |
| FIELD CLASSIFICATION AND REMARKS |                   |                  |        |        |        |            |                    |           |            |          |            |             |              |         |

## FIELD CLASSIFICATION AND REMARKS

|   |   |   |   |  |    |    |    |    |     |  |                                                                                                        |
|---|---|---|---|--|----|----|----|----|-----|--|--------------------------------------------------------------------------------------------------------|
| 1 | 1 | S | 1 |  | 13 | 20 | 12 | 11 | 15" |  | 4" BLACK ASPHALT PAVEMENT<br>3" COARSE GRAVEL SUB-BASE<br>5" SAME AS SL                                |
| 2 | 2 | S | 2 |  | 13 | 1  | 7  | 7  | 13" |  | DARK BROWN CLAY TO FINE SAND, LITTLE MF<br>GRAVEL, TRACE SILT (FINE) Dry<br>~ 50% CLAYERS/SAND<br>DOT  |
| 3 | 3 | S | 3 |  | 4  | 3  | 3  | 2  | 12" |  | DARK BROWN CLAY SAND, LITTLE MF<br>GRAVEL, TRACE SILT (FINE) slightly<br>moist ~ 50% CLAYERS/SAND      |
| 4 | 4 | S | 4 |  | 3  | 2  | 2  | 1  | 11" |  | DARK BROWN CLAY SAND and MF gravel<br>wet ~ 50% CLAYERS/SAND (trace silt)<br>(fill)                    |
| 5 | 5 | S | 5 |  | 2  | 8  | 4  | 1  | 14" |  | DARK BROWN CLAY SAND, LITTLE F<br>GRAVEL, TRACE SILT (FINE) wet<br>slightly Petroleum odor             |
| 6 | 6 | S | 6 |  | 3  | 1  | 2  | 2  | 4"  |  | TOP 6in. SAME AS SS (SAMPLE SOA)<br>GRAY SILT & CLAY, LITTLE MF SAND<br>(bottom 6in.) trace org fibers |

Boring No. NA-03 Sheet 1 of

BLANKFOM - 11/5/1993

4 8 13 27 172



Parsons  
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Quade &  
Douglas, Inc.

## BORING LOG

BORING NUMBER: 134-103

SHEET NUMBER: 2-12 OF 2

PROJECT NUMBER:

PROJECT:

LOCATION:

CLIENT:

CONTRACTOR:

DRILLER:

INSPECTOR:

DRILLING METHOD:

RIG TYPE:

LOCATION:

COORD. N:

STN. NO.:

SURFACE ELEV.:

DATUM:

E:

OFFSET:

START DATE:

FINISH DATE:

TIME:

TIME:

| Type/Symbol | Casing | Split Spoon | Shelby Tube | Piston | Pitcher | Core Barrel |
|-------------|--------|-------------|-------------|--------|---------|-------------|
| I.D.        |        | S           | U           | P      | L       | C           |
| O.D.        |        |             |             |        |         |             |
| Length      |        |             |             |        |         |             |
| Hammer Wt.  |        |             |             |        |         |             |
| Hammer Fall |        |             |             |        |         |             |

Drill Rod Size  
I.D. (O.D.)

### GROUNDWATER DATA

| Date | Time | Water Depth | Casing Depth | Hole Depth |
|------|------|-------------|--------------|------------|
|      |      |             |              |            |
|      |      |             |              |            |
|      |      |             |              |            |
|      |      |             |              |            |

| DEPTH (FT) | CASING (BLOWS/FT) | SAMPLE |        |        | SOIL (BLOWS/6 in.) |            |          |              |         | FIELD CLASSIFICATION AND REMARKS                                                                                                                                                                  |
|------------|-------------------|--------|--------|--------|--------------------|------------|----------|--------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|            |                   | TYPE   | NUMBER | SYMBOL | DEPTH (FT)         | CORING     |          |              |         |                                                                                                                                                                                                   |
|            |                   |        |        |        |                    | 0/6        | 6/12     | 12/18        | 18/24   |                                                                                                                                                                                                   |
|            |                   |        |        |        | RUN (in.)          | REC. (in.) | REC. (%) | L > 4" (in.) | RQD (%) | Depth Elev.                                                                                                                                                                                       |
| 3          |                   | S      | 7A     | 13     | 4                  | 8          | 13       | 7            | 19"     | TOP IS in (S.7A). SAND GRAY SILTY CLAY, LITTLE MF SAND, some shells (A SAND) one piece of wood (small twig) (S.7A) Bottom 5' (S.7B) Orange-brown CF SAND and Silt, little MF gravel (Tilt), moist |
| 4          |                   | S      | 7B     | 15     | 1                  | 7          | 12       | 20           | 9"      | Orange-brown CF SAND, some MF Gravel, little Silt (Tilt) moist                                                                                                                                    |
| 5          |                   | S      | 8      | 17     | 15                 | 32         | 51       | 73           | 20"     | Orange-brown CF SAND, little F Gravel, Little Silt (Tilt) moist                                                                                                                                   |
| 10         |                   |        | 9      | 19     |                    |            |          |              |         | Bottom of boring at 19 feet.                                                                                                                                                                      |
| 15         |                   |        |        |        |                    |            |          |              |         |                                                                                                                                                                                                   |
| 20         |                   |        |        |        |                    |            |          |              |         |                                                                                                                                                                                                   |
| 25         |                   |        |        |        |                    |            |          |              |         |                                                                                                                                                                                                   |



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# BORING LOG

BORING NUMBER: NA-06  
SHEET NUMBER: 1 OF 2

PROJECT NUMBER: 4735-1420-03

LOCATION:

N:

E:

SURFACE ELEV.: 5 feet  
DATUM: Sea Level

START DATE: 5/23/15 TIME: 1030  
FINISH DATE: 5/23/15 TIME: 1230

## GROUNDWATER DATA

| Date    | Time | Water Depth | Casing Depth | hole Depth |
|---------|------|-------------|--------------|------------|
| 5/23/15 | 1200 | 4.51'       | —            | 57.5'      |

PROJECT: Hudson Bergen Light Rail Train System  
LOCATION: River Road Hoboken, NJ  
CLIENT: NJ Transit  
CONTRACTOR: Tracy Boring and Drilling  
DRILLER: John Meco - Metric  
INSPECTOR: McCliment and Rik

**DRAFT**

DRILLING METHOD: Hand Drilled Bit Hollow Stem Auger  
RIG TYPE: Mobile D40L Truck Mount

| Type/Symbol | Casing | Socket Spoon | Shallow Tube    | Portion | Division | Core Barrel |
|-------------|--------|--------------|-----------------|---------|----------|-------------|
| I.D.        | HWS    | S            | U               | P       | D        | C           |
| O.D.        | 4"     | 1 7/8"       | —               | —       | —        | 2 1/8"      |
| Length      | 4 1/2" | 2"           | —               | —       | —        | 3"          |
|             | 5'     | 0'           | —               | —       | —        | 7.5'        |
| Hammer Wt.  | 30 lbs | 140 lbs      | Drill Rod Size  |         |          |             |
| Hammer Fall | 30"    | 30"          | I.D. (O.D.)     |         |          |             |
|             |        |              | NW              |         |          |             |
|             |        |              | 2 1/4" (2 5/8") |         |          |             |

| DEPTH (FT) |        | GRAPHIC LOG |            | CASING (BLOWS/FT) |   | CORING (MIN./FT) |   | SAMPLE |      | SOIL (BLOWS/6 IN.) |       |            |          |            | FIELD CLASSIFICATION AND REMARKS |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| TYPE       | NUMBER | SYMBOL      | DEPTH (FT) | C                 | R | L                | D | O/S    | 0/12 | 12/18              | 18/24 | REC. (in.) | REC. (%) | L>4" (in.) | ROD (%)                          | Depth Elev. |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|            |        |             |            |                   |   |                  |   |        |      |                    |       |            |          |            |                                  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |



Parsons  
Brinckerhoff  
Owens &  
Douglas, Inc.

# BORING LOG

(continued)

BORING NUMBER: NA-06

SHEET NUMBER: 2 OF 2

PROJECT NUMBER: 4739-1420-03

DRAFT

SUBJECT: Hudson Bergen Light Rail Train System

LOCATION: River Road, Hoboken, NJ

DRILLER: Tim Vabekas - McCoy

INSPECTOR: John Howe - Healy

| DEPTH (FT) | GRAPHIC LOG | CASING (BLOWS/FT) | SAMPLE     |          |            |            | SOIL (BLOWS/6 in.) |      |       |       |            | Depth Elev.                 | FIELD CLASSIFICATION AND REMARKS |
|------------|-------------|-------------------|------------|----------|------------|------------|--------------------|------|-------|-------|------------|-----------------------------|----------------------------------|
|            |             |                   | TYPE       | NUMBER   | SYMBOL     | DEPTH (FT) | O/G                | 6/12 | 12/18 | 18/24 | REC. (in.) |                             |                                  |
|            |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |
|            |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |
| CORING     |             | RUN (in.)         | REC. (in.) | REC. (%) | L>4" (in.) | ROD (%)    |                    |      |       |       |            |                             |                                  |
| 25         |             |                   | S 5-12     |          | 23.5-24    | 3          | 1                  | 2    | 3     | 5     |            | Same as above               |                                  |
|            |             |                   | S 5-13     |          | 23.5-24.3  | 5          | 2                  | 2    | 2     | 20    |            | 25' Black CLAYEY SILT, med. |                                  |
|            |             |                   |            |          |            |            |                    |      |       |       |            | EOTB 07.5'                  |                                  |
| 30         |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |
| 35         |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |
| 40         |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |
| 45         |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |
| 50         |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |
| 55         |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |
| 60         |             |                   |            |          |            |            |                    |      |       |       |            |                             |                                  |

GROUND SURFACE ELEVATION:  
NORTH:

STARTED: 4/6/95

COMPLETED: 4/7/95

GROUTED ON: 4/10/95

DRAFT

RIG TYPE: Acker AD2 Truck Mounted

EAST:

DRILLING METHOD: Rotary wash with casing

CONTRACTOR: Jersey Boring &amp; Drilling Co.

CASING: 4.0 inch I.D. (HW) flush joint driven with 300 lb. hammer, 30 inch drop

DRAFT

CORE BARREL: NX Double Tube (2 1/8" I.D.)

SAMPLER (I.D. IN.): SS; Stand. Split Barrel (1 3/8") driven with 140 lb. hammer, 30 inch drop

SAMPLER (I.D. IN.):

U; Shelby Tube (2 7/8"), P; Platon (2 7/8")

\*Hole depth 14.0'; Casing depth 14.0'

\*\*Hole depth 14.0'; Casing depth 14.0'

\*\*\*Hole depth 80.3'; Casing depth 24.0'

\*\*\*\*Hole depth 95.0'; Casing depth 24.0' (mud line)

\*\*\*\*Hole depth 95.0'. Casing depth 24.0' (mud line)

| DEPTH<br>(feet) | USC<br>Sym. | DESCRIPTION                                                                                                                                           | CASING          |       | SPT         | SAMPLE |     |                 |               |
|-----------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------|-------------|--------|-----|-----------------|---------------|
|                 |             |                                                                                                                                                       | Depth<br>(feet) | Bl/ft |             | Type   | No. | Depth<br>(feet) | Rec.<br>(in.) |
| 0               |             | (based on Burmister system)<br>SS-1 4" TOPSOIL over ~5" Brown cf SAND, and ml<br>Gravel, little Silt over 5" of Black Cinders (dry)                   |                 | 15    | 8-33-19     | SS     | 1   | 0.0-1.5         | 14"           |
| 1               |             |                                                                                                                                                       |                 | 16    |             |        |     |                 |               |
| 2               |             | SS-2 Black Cinders (size of cf Sand, little f Gravel,<br>slag, coal) (dry)                                                                            |                 | 36    | 22-19-18    | SS     | 2   | 2.5-4.0         | 7"            |
| 3               |             |                                                                                                                                                       |                 | 34    |             |        |     |                 |               |
| 4               |             |                                                                                                                                                       |                 | 29    | 5-5-7       | SS     | 3   | 5.0-6.5         | 16"           |
| 5               |             | SS-3 Black, light grey & reddish brown CINDERS,<br>trace red brick fragments, trace grey mortar fragments<br>(dry)                                    |                 | 10    |             |        |     |                 |               |
| 6               |             |                                                                                                                                                       |                 | 22    |             |        |     |                 |               |
| 7               |             |                                                                                                                                                       |                 | 23    | 8-6-5       | SS     | 4   | 7.5-9.0         | 6"            |
| 8               |             | SS-4 Dark brown cf SAND, and cf Gravel (black sub-<br>angular), little Clayey Silt (moist)                                                            |                 | 12    | 1-1-1       | SS     | 5   | 10.0-11.5       | 18"           |
| 9               |             | SS-5 Grey & black mottled organic CLAY & SILT (oily)                                                                                                  |                 | 4     |             |        |     |                 |               |
| 10              |             |                                                                                                                                                       |                 | 3     | 3-6-4       | SS     | 5   | 10.5-12.0       | 10"           |
| 11              |             |                                                                                                                                                       |                 | 2     | PUSHED      | U      | 1   | 12.0-14.0       | 24"           |
| 12              |             | U-1 Top: Grey & Black mottled organic CLAY & SILT<br>Bottom: Black organic SILTY CLAY                                                                 |                 | 2     |             |        |     |                 |               |
| 13              |             |                                                                                                                                                       |                 | 2     |             |        |     |                 |               |
| 14              |             |                                                                                                                                                       |                 | 6     | WOH-WOH-WOH | SS     | 6   | 15.0-16.5       | 16"           |
| 15              |             | SS-6 Dark grey organic SILTY CLAY, trace f Sand<br>(wet)                                                                                              |                 | 5     |             |        |     |                 |               |
| 16              |             |                                                                                                                                                       |                 | 5     |             |        |     |                 |               |
| 17              |             | Light grey color change in wash at ~17.0'                                                                                                             |                 | 6     |             |        |     |                 |               |
| 18              |             |                                                                                                                                                       |                 | 11    |             |        |     |                 |               |
| 19              |             |                                                                                                                                                       |                 | 15    | 6-7-12      | SS     | 0   | 20.0-21.5       | 0"            |
| 20              |             | SS-0 (No Recovery) (Used 3" diameter split spoon and<br>300 lb hammer to obtain S-7                                                                   |                 | 28    |             |        |     |                 |               |
| 21              |             | SS-7 Grey cf SAND, trace fm Gravel, trace Silt (wet)                                                                                                  |                 | 36    | 11-10-9     | SS     | 7   | 21.5-23.0       | 14"           |
| 22              |             |                                                                                                                                                       |                 | 25    |             |        |     |                 |               |
| 23              |             | At ~ 23.0' hit pocket of gas, drilling mud blown out of<br>boring. Strong organic odor                                                                |                 | 30    | PUSHED      | U      | 2   | 25.0-27.0       | 24"           |
| 24              |             | At ~ 24.0' Peat coming up in wash                                                                                                                     |                 |       |             |        |     |                 |               |
| 25              |             | U-2 Top: Dark brown PEAT, some Silt, trace f Sand,<br>strong organic odor. Bottom: Light grey CLAYEY SILT,<br>some f Sand, trace organic debris (wet) |                 |       |             |        |     |                 |               |

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**BLOCK 110 MONITORING WELL  
2007**

|                                                             |  |  |                                                 |  |                                 |
|-------------------------------------------------------------|--|--|-------------------------------------------------|--|---------------------------------|
| Project<br><b>PSE&amp;G FORMER HOBOKEN GAS WORKS</b>        |  |  | Project No.<br><b>9164901</b>                   |  |                                 |
| Location<br><b>HOBOKEN, NJ</b>                              |  |  | Elevation and Datum<br><b>Approx.</b>           |  |                                 |
| Drilling Agency<br><b>Advanced Drilling, Inc.</b>           |  |  | Date Started<br><b>5/11/07</b>                  |  | Date Finished<br><b>5/15/07</b> |
| Drilling Equipment<br><b>Failing Strata Star 15</b>         |  |  | Completion Depth<br><b>42 ft</b>                |  | Rock Depth<br><b>NE</b>         |
| Size and Type of Bit<br><b>8.25" I.D. HSA/6" ROLLER BIT</b> |  |  | Number of Samples<br><b>16</b>                  |  | Disturbed<br><b>-</b>           |
| Casing Diameter (in)<br><b>6" I.D. STEEL CASING</b>         |  |  | Casing Depth (ft)<br><b>33</b>                  |  | Water Level (ft.)<br><b>4</b>   |
| Casing Hammer<br><b>-</b>                                   |  |  | Weight (lbs)<br><b>-</b>                        |  | Drop (in)<br><b>-</b>           |
| Sampler<br><b>2" Split Spoon</b>                            |  |  | Drilling Foreman<br><b>S.Alberalla/C.Conner</b> |  |                                 |
| Sampler Hammer<br><b>Safety</b>                             |  |  | Weight (lbs)<br><b>140</b>                      |  |                                 |
|                                                             |  |  | Drop (in)<br><b>30</b>                          |  |                                 |
|                                                             |  |  | Inspecting Engineer<br><b>G.Termini</b>         |  |                                 |

| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                                       | PID Reading (cpm)                      | Depth Scale | Sample Data |      |             |                       |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |                    |
|-----------------|------------|--------------------------------------------------------------------------|----------------------------------------|-------------|-------------|------|-------------|-----------------------|--------------------|-------------------------------------------------------------------------------------|--------------------|
|                 |            |                                                                          |                                        |             | Number      | Type | Recov. (in) | Penetr. resist. (psi) | N-Value (Blows/ft) |                                                                                     |                    |
|                 |            | Grey-brown c-f SAND, tr f gravel, tr silt (dry) [SW]                     |                                        | 0           |             |      |             |                       |                    |                                                                                     | 08:47 Start boring |
|                 |            |                                                                          |                                        | 1           | 1           | SS   | 3           | 34                    |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 2           |             |      |             | 20                    |                    |                                                                                     |                    |
|                 |            | Brown f-m SAND, tr brick, tr concrete, tr silt, tr f gravel (moist) [SP] |                                        | 3           | 2           | SS   | 9           | 14                    |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 4           |             |      |             | 18                    |                    |                                                                                     |                    |
|                 |            | Brown f-m SAND, tr silt (wet) [FILL]                                     |                                        | 5           |             |      |             | 15                    |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 6           |             |      |             | 11                    |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 7           |             |      |             | 9                     |                    |                                                                                     |                    |
|                 |            | Brown f-m SAND, tr silt (wet) [FILL]                                     |                                        | 8           |             |      |             | 11                    |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 9           |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 10          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            | Brown f-c SAND, some silt, tr f gravel, tr wood (wet) [FILL]             |                                        | 11          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 12          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            | Brown f-c SAND, some silt, tr f gravel, tr wood (wet) [FILL]             |                                        | 13          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 14          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            | Brown f-m SAND, tr c sand, tr silt (wet) [FILL]                          |                                        | 15          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 16          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 17          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 18          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          | Brown f-m SAND, some silt (wet) [FILL] |             | 19          |      |             |                       | 1                  |                                                                                     |                    |
|                 |            |                                                                          |                                        | 20          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 21          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 22          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 23          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 24          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 25          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 26          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 27          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 28          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 29          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 30          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 31          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 32          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 33          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 34          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 35          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 36          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 37          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 38          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 39          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 40          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 41          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 42          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 43          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 44          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 45          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 46          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 47          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 48          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 49          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 50          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 51          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 52          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 53          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 54          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 55          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 56          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 57          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 58          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 59          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 60          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 61          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 62          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 63          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 64          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 65          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 66          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 67          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 68          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 69          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 70          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 71          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 72          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 73          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 74          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 75          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 76          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 77          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 78          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 79          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 80          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 81          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 82          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 83          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 84          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 85          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 86          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 87          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 88          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 89          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 90          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 91          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 92          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 93          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 94          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 95          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 96          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 97          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 98          |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 99          |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 100         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 101         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 102         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 103         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 104         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 105         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 106         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 107         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 108         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 109         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 110         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 111         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 112         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 113         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 114         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 115         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 116         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 117         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 118         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 119         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 120         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 121         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 122         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 123         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 124         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 125         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 126         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 127         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 128         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 129         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 130         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 131         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 132         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 133         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 134         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 135         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 136         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 137         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 138         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 139         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 140         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 141         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 142         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 143         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 144         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 145         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 146         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 147         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 148         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 149         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 150         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 151         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 152         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 153         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 154         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 155         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 156         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 157         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 158         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 159         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 160         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 161         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 162         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 163         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 164         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 165         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 166         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 167         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 168         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 169         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 170         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 171         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 172         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 173         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 174         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 175         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 176         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 177         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 178         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 179         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 180         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 181         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 182         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 183         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 184         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 185         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 186         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 187         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 188         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 189         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 190         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 191         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 192         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 193         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 194         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 195         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 196         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 197         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 198         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 199         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 200         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 201         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 202         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 203         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 204         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 205         |             |      |             | 1                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        | 206         |             |      |             | 2                     |                    |                                                                                     |                    |
|                 |            |                                                                          |                                        |             |             |      |             |                       |                    |                                                                                     |                    |

|                 |            |                                                                  |                                |             |             |                     |    |    |         |                                                                                     |                                                                   |
|-----------------|------------|------------------------------------------------------------------|--------------------------------|-------------|-------------|---------------------|----|----|---------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Project         |            |                                                                  | PSE&G FORMER HOBOKEN GAS WORKS |             |             | Project No.         |    |    | 9164901 |                                                                                     |                                                                   |
| Location        |            |                                                                  | HOBOKEN, NJ                    |             |             | Elevation and Datum |    |    | Approx. |                                                                                     |                                                                   |
| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                               | PID Reading (ppm)              | Depth Scale | Sample Data |                     |    |    |         | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |                                                                   |
|                 |            | UNKNOWN OBSTRUCTION                                              |                                | 20          |             |                     |    |    |         |                                                                                     | Obstruction at 20'.                                               |
|                 |            |                                                                  |                                | 21          |             |                     |    |    |         |                                                                                     |                                                                   |
|                 |            |                                                                  |                                | 22          |             |                     |    |    |         |                                                                                     |                                                                   |
|                 |            |                                                                  |                                | 23          |             |                     |    |    |         |                                                                                     |                                                                   |
|                 |            | Grey to tan f-m SAND, tr c sand, tr f gravel, tr silt (wet) [SP] | 479                            | 24          |             |                     |    | 22 |         |                                                                                     | Auger through obstruction to 24'.                                 |
|                 |            |                                                                  |                                | 25          | 11          | SS                  | 12 | 14 | 32      |                                                                                     | Naphthalene-like odor (24'-26')                                   |
|                 |            | Grey f-m SAND, tr c sand, tr f gravel, tr silt (wet) [SP]        | 287                            | 26          |             |                     |    | 18 |         |                                                                                     | Naphthalene-like odor (26'-28')                                   |
|                 |            |                                                                  | 72.3                           | 27          | 12          | SS                  | 9  | 26 |         | 64                                                                                  |                                                                   |
|                 |            |                                                                  |                                | 28          |             |                     |    | 29 |         |                                                                                     | Naphthalene-like odor (28'-30')                                   |
|                 |            | Red brown silty f-c SAND, tr clay, tr f gravel (wet) [SM]        | 59.8                           | 29          | 13          | SS                  | 10 | 35 |         | 101                                                                                 |                                                                   |
|                 |            |                                                                  | 80                             | 30          |             |                     |    | 28 |         |                                                                                     | Naphthalene-like odor (30'-32')                                   |
|                 |            | Tan to grey f-m SAND, tr silt (wet)                              | 68.6                           | 31          | 14          | SS                  | 14 | 41 |         |                                                                                     |                                                                   |
|                 |            |                                                                  | 69.5                           | 32          |             |                     |    | 46 |         |                                                                                     |                                                                   |
|                 |            |                                                                  | 134                            | 33          |             |                     |    | 55 |         |                                                                                     |                                                                   |
|                 |            | White weathered SANDSTONE (wet) [WTHD ROCK]                      | 11.1                           | 34          | 15          | SS                  | 2  | 53 |         |                                                                                     |                                                                   |
|                 |            | White-grey weathered SANDSTONE (wet) [WTHD ROCK]                 | 1.7                            | 35          | 16          | SS                  | 1  | 8  |         |                                                                                     | Slight naphthalene-like odor (32'-32.2')                          |
|                 |            |                                                                  |                                | 36          |             |                     |    | 12 |         |                                                                                     | 13:32 Install casing to 33'.<br>End of boring at 33' on 05/11/07. |
|                 |            |                                                                  |                                | 37          |             |                     |    | 16 |         |                                                                                     | 11:44 Restart boring on 05/15/07.                                 |
|                 |            |                                                                  |                                | 38          |             |                     |    | 24 |         |                                                                                     | Use 6" roller bit to drill 10' into weathered bedrock.            |
|                 |            |                                                                  |                                | 39          |             |                     |    |    |         |                                                                                     |                                                                   |
|                 |            |                                                                  |                                | 40          |             |                     |    |    |         |                                                                                     |                                                                   |
|                 |            |                                                                  |                                | 41          |             |                     |    |    |         |                                                                                     |                                                                   |
|                 |            |                                                                  |                                | 42          |             |                     |    |    |         |                                                                                     | 12:38 End of boring at 42'.<br>Start well installation.           |
|                 |            |                                                                  |                                | 43          |             |                     |    |    |         |                                                                                     |                                                                   |
|                 |            |                                                                  |                                | 44          |             |                     |    |    |         |                                                                                     |                                                                   |
|                 |            |                                                                  |                                | 45          |             |                     |    |    |         |                                                                                     |                                                                   |

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|                                                             |  |  |                                                 |  |                                 |
|-------------------------------------------------------------|--|--|-------------------------------------------------|--|---------------------------------|
| Project<br><b>PSE&amp;G FORMER HOBOKEN GAS WORKS</b>        |  |  | Project No.<br><b>9164901</b>                   |  |                                 |
| Location<br><b>HOBOKEN, NJ</b>                              |  |  | Elevation and Datum<br><b>Approx.</b>           |  |                                 |
| Drilling Agency<br><b>Advanced Drilling, Inc.</b>           |  |  | Date Started<br><b>5/10/07</b>                  |  | Date Finished<br><b>5/15/07</b> |
| Drilling Equipment<br><b>Failing Strata Star 15</b>         |  |  | Completion Depth<br><b>44 ft</b>                |  | Rock Depth<br><b>NE</b>         |
| Size and Type of Bit<br><b>8.25" I.D. HSA/6" ROLLER BIT</b> |  |  | Number of Samples<br><b>18</b>                  |  | Disturbed<br><b>-</b>           |
| Casing Diameter (in)<br><b>6" I.D. STEEL CASING</b>         |  |  | Casing Depth (ft)<br><b>36</b>                  |  | Undisturbed<br><b>-</b>         |
| Casing Hammer<br><b>-</b>                                   |  |  | Weight (lbs)<br><b>-</b>                        |  | Drop (in)<br><b>-</b>           |
| Sampler<br><b>2" Split Spoon</b>                            |  |  | Drilling Foreman<br><b>S.Alberalla/C.Conner</b> |  |                                 |
| Sampler Hammer<br><b>Safety</b>                             |  |  | Weight (lbs)<br><b>140</b>                      |  | Drop (in)<br><b>30</b>          |
|                                                             |  |  | Inspecting Engineer<br><b>G.Termini</b>         |  |                                 |

| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                  | PID Reading (ppm) | Depth Scale | Sample Data |      |             |                      |                    |  | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|-----------------|------------|-----------------------------------------------------|-------------------|-------------|-------------|------|-------------|----------------------|--------------------|--|-------------------------------------------------------------------------------------|
|                 |            |                                                     |                   |             | Number      | Type | Recov. (in) | Penet. resist. BL/in | N-Value (Blows/ft) |  |                                                                                     |
|                 |            | Brown f-m SAND, some silt, tr f gravel (dry) [FILL] |                   | 0           |             |      |             | 22                   |                    |  | 09:25 Start boring                                                                  |
|                 |            |                                                     | 0.2               | 1           | 1           | SS   | 9           | 27                   |                    |  |                                                                                     |
|                 |            |                                                     | 0.7               | 2           |             |      |             | 32                   |                    |  |                                                                                     |
|                 |            | Brown f-m SAND, some silt, tr f gravel (dry) [FILL] | 6.9               | 3           | 2           | SS   | 9           | 26                   |                    |  | Slight MGP odor (2'-4')                                                             |
|                 |            |                                                     | 11.6              | 4           |             |      |             | 25                   |                    |  |                                                                                     |
|                 |            | Grey silty f-m SAND, tr clay (moist) [FILL]         | 29.6              | 5           | 3           | SS   | 10          | 8                    |                    |  |                                                                                     |
|                 |            |                                                     | 83.7              | 6           |             |      |             | 8                    |                    |  |                                                                                     |
|                 |            | Brown silty f-m SAND, tr f gravel (wet) [FILL]      | 77.6              | 7           | 4           | SS   | 8           | 100/5"               |                    |  | Trace sheen and MGP odor (6'-8')                                                    |
|                 |            |                                                     | 34.7              | 8           |             |      |             | 1                    |                    |  |                                                                                     |
|                 |            | Brown silty f-m SAND, tr f gravel (wet) [FILL]      | 132               | 9           | 5           | SS   | 6           | 2                    |                    |  | MGP odor (8'-10')                                                                   |
|                 |            |                                                     | 93.7              | 10          |             |      |             | 1                    |                    |  |                                                                                     |
|                 |            | Grey silty CLAY, tr roots, tr f sand (moist) [CL]   | 83.1              | 11          | 6           | SS   | 18          | 2                    |                    |  | MGP odor (10'-12')                                                                  |
|                 |            | Brown PEAT, some silt (moist) [PT]                  | 157               | 12          |             |      |             | 1                    |                    |  |                                                                                     |
|                 |            |                                                     | 235               | 13          | 7           | SS   | 18          | 3                    |                    |  | Some OM and MGP odor (12'-14')                                                      |
|                 |            | Grey f SAND, some silt (wet) [SP]                   | 691               | 14          |             |      |             | 4                    |                    |  |                                                                                     |
|                 |            |                                                     | 30.2              | 15          | 8           | SS   | 6           | 5                    |                    |  | MGP odor (14'-16')                                                                  |
|                 |            | Grey f-m SAND, tr silt (wet) [SP]                   | 11.8              | 16          |             |      |             | 4                    |                    |  |                                                                                     |
|                 |            | Tan silty CLAY, tr f sand (wet) [CL]                | 106               | 17          | 9           | SS   | 7           | 7                    |                    |  | Naphthalene-like odor (16'-18')                                                     |
|                 |            |                                                     | 88.1              | 18          |             |      |             | 5                    |                    |  |                                                                                     |
|                 |            | Tan silty CLAY, tr c sand, tr f gravel (wet) [CL]   | 116               | 19          | 10          | SS   | 8           | 7                    |                    |  | Naphthalene-like odor (18'-20')                                                     |
|                 |            |                                                     | 108               | 20          |             |      |             | 9                    |                    |  |                                                                                     |
|                 |            |                                                     |                   |             |             |      |             | 15                   |                    |  |                                                                                     |
|                 |            |                                                     |                   |             |             |      |             | 22                   |                    |  |                                                                                     |
|                 |            |                                                     |                   |             |             |      |             | 24                   |                    |  |                                                                                     |

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|                 |            |                                                          |                                           |                     |             |         |             |                        |                    |                                                                                     |                                                                                                                                                           |
|-----------------|------------|----------------------------------------------------------|-------------------------------------------|---------------------|-------------|---------|-------------|------------------------|--------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project         |            | PSE&G FORMER HOBOKEN GAS WORKS                           |                                           | Project No.         |             | 9164901 |             |                        |                    |                                                                                     |                                                                                                                                                           |
| Location        |            | HOBOKEN, NJ                                              |                                           | Elevation and Datum |             | Approx. |             |                        |                    |                                                                                     |                                                                                                                                                           |
| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                       | PID Reading (ppm)                         | Depth Scale         | Sample Data |         |             |                        |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |                                                                                                                                                           |
|                 |            |                                                          |                                           |                     | Number      | Type    | Recon. (in) | Penetr. resist. BLU/in | N-Value (Blows/ft) |                                                                                     |                                                                                                                                                           |
|                 |            | Tan f-c SAND, tr f gravel, tr silt (wet) [SW]            |                                           | 20                  |             |         |             | 2                      |                    |                                                                                     | Naphthalene-like odor (20'-22')                                                                                                                           |
|                 |            |                                                          | 10.6                                      | 21                  | 11          | SS      | 20          | 4                      | 8                  |                                                                                     |                                                                                                                                                           |
|                 |            | Tan f-c SAND, tr f gravel, tr silt (wet) [SW]            | 10.9                                      | 22                  |             |         |             | 4                      |                    |                                                                                     | Naphthalene-like odor (22'-24')                                                                                                                           |
|                 |            |                                                          | 11.4                                      | 23                  | 12          | SS      | 10          | 10                     | 35                 |                                                                                     |                                                                                                                                                           |
|                 |            | Tan f-c SAND, tr f gravel, tr silt (wet) [SW]            | 59.1                                      | 24                  |             |         |             | 13                     |                    |                                                                                     | Naphthalene-like odor (24'-26')                                                                                                                           |
|                 |            |                                                          | 30                                        | 25                  | 13          | SS      | 5           | 6                      | 14                 |                                                                                     |                                                                                                                                                           |
|                 |            | Tan to white f-m SAND, tr c sand, tr f gravel (wet) [SP] | 24.6                                      | 26                  |             |         |             | 9                      |                    |                                                                                     | Slight naphthalene-like odor (26'-28')                                                                                                                    |
|                 |            |                                                          | 7.4                                       | 27                  | 14          | SS      | 9           | 19                     | 39                 |                                                                                     |                                                                                                                                                           |
|                 |            | Red-white f-m SAND, tr f gravel (wet) [SP]               | 6.5                                       | 28                  |             |         |             | 18                     |                    |                                                                                     | Slight naphthalene-like odor (28'-30')                                                                                                                    |
|                 |            |                                                          | 9.6                                       | 29                  | 15          | SS      | 10          | 16                     | 32                 |                                                                                     |                                                                                                                                                           |
|                 |            | Red-white f-m SAND, tr f gravel (wet) [SP]               | 2.7                                       | 30                  |             |         |             | 16                     |                    |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          | 1.9                                       | 31                  | 16          | SS      | 10          | 6                      | 49                 |                                                                                     |                                                                                                                                                           |
|                 |            | Red-white c-f SAND, tr silt (wet) [SW]                   | 1.5                                       | 32                  |             |         |             | 16                     |                    |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          | 0                                         | 33                  | 17          | SS      | 2           | 35                     | 90                 |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          | White c-f cemented SAND (wet) [WTHD ROCK] | 0                   | 34          |         |             |                        | 37                 |                                                                                     | 14:18 Install casing to 34'.<br>End of boring on 05/10/07.<br>14:42 Restart boring on 05/15/07.<br>Use 6" roller bit to drill 10' into weathered bedrock. |
|                 |            |                                                          |                                           | 0                   | 35          | 18      | SS          | 3                      | 75                 | 57                                                                                  |                                                                                                                                                           |
|                 |            |                                                          |                                           | 0                   | 36          |         |             |                        | 35                 |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          |                                           | 0                   | 37          |         |             |                        | 22                 |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          |                                           | 0                   | 38          |         |             |                        | 20                 |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          |                                           | 0                   | 39          |         |             |                        |                    |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          |                                           | 0                   | 40          |         |             |                        |                    |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          |                                           | 0                   | 41          |         |             |                        |                    |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          |                                           | 0                   | 42          |         |             |                        |                    |                                                                                     | 15:19 End of boring at 44'.<br>Start well installation.                                                                                                   |
|                 |            |                                                          |                                           | 0                   | 43          |         |             |                        |                    |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          |                                           | 44                  |             |         |             |                        |                    |                                                                                     |                                                                                                                                                           |
|                 |            |                                                          |                                           | 45                  |             |         |             |                        |                    |                                                                                     |                                                                                                                                                           |

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| Project              |  | PSE&G FORMER HOBOKEN GAS WORKS |  | Project No.         |  | 9164901                           |  |
| Location             |  | HOBOKEN, NJ                    |  | Elevation and Datum |  | Approx.                           |  |
| Drilling Agency      |  | Advanced Drilling, Inc.        |  | Date Started        |  | 5/14/07                           |  |
| Drilling Equipment   |  | Failing Strata Star 15         |  | Date Finished       |  | 5/15/07                           |  |
| Size and Type of Bit |  | 8.25" I.D. HSA/6" ROLLER BIT   |  | Completion Depth    |  | 41 ft                             |  |
| Casing Diameter (in) |  | 6" I.D. STEEL CASING           |  | Rock Depth          |  | NE                                |  |
| Casing Hammer        |  | -                              |  | Number of Samples   |  | Disturbed 16 Undisturbed - Core - |  |
| Weight (lbs)         |  | -                              |  | Water Level (ft)    |  | First 4 Completion - 24 HR. -     |  |
| Drop (in)            |  | -                              |  | Drilling Foreman    |  | C.Conner                          |  |
| Sampler              |  | 2" Split Spoon                 |  | Inspecting Engineer |  | G.Termini                         |  |
| Sampler Hammer       |  | Safety                         |  | Weight (lbs)        |  | 140                               |  |
| Drop (in)            |  | 30                             |  |                     |  |                                   |  |

G:\DATA\9164901\ENGINEERING DATA\ENVIRONMENTAL\GINT\LOGS\PSEG HOBOKEN CAMP-A.GPJ ... 7/16/2007 8:57:12 AM ... Report Log - LANGAN ... Template TEMPLATE.GOT

| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                                   | PID Reading (ppm) | Depth Scale | Sample Data |      |               |                  |            |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|-----------------|------------|----------------------------------------------------------------------|-------------------|-------------|-------------|------|---------------|------------------|------------|--------------------|-------------------------------------------------------------------------------------|
|                 |            |                                                                      |                   |             | Number      | Type | Recovery (in) | Penetration (in) | Blow Count | N-Value (Blows/ft) |                                                                                     |
|                 |            | ASPHALT and GRAVEL                                                   |                   | 0           |             |      |               |                  |            |                    | 09:13 Start boring                                                                  |
|                 |            | Brown f-c SAND, tr silt, tr f gravel, tr coal fragments (dry) [FILL] |                   | 0 1         | 1           | SS   | 13            | 17               |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 2         |             |      |               | 30               |            |                    |                                                                                     |
|                 |            | Brown f-c SAND, tr AM, tr silt, tr f gravel, tr brick (moist) [FILL] |                   | 0 3         | 2           | SS   | 12            | 20               |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 4         |             |      |               | 13               |            |                    |                                                                                     |
|                 |            | Grey f-m SAND, tr c sand, tr silt (wet) [FILL]                       |                   | 0 5         | 3           | SS   | 13            | 17               |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 6         |             |      |               | 23               |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 7         | 4           | SS   | 19            | 13               |            |                    |                                                                                     |
|                 |            | Grey f-m SAND, tr c sand, tr f gravel, tr silt (wet) [FILL]          |                   | 0 8         | 5           | SS   | 4             | 2                |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 9         |             |      |               | 2                |            |                    |                                                                                     |
|                 |            | Grey f-m SAND, tr silt, tr wood (wet) [FILL]                         |                   | 0 10        | 6           | SS   | 8             | 2                |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 11        |             |      |               | 1                |            |                    |                                                                                     |
|                 |            | Grey f-c SAND, tr silt, tr AM, tr f gravel (wet) [FILL]              |                   | 0 12        | 7           | SS   | 7             | 2                |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 13        |             |      |               | 1                |            |                    |                                                                                     |
|                 |            | Grey f-c SAND, tr silt, tr f gravel (wet) [FILL]                     |                   | 0 14        | 8           | SS   | NR            | 2                |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 15        |             |      |               | 1                |            |                    |                                                                                     |
|                 |            | NO RECOVERY                                                          |                   | 0 16        |             |      |               | 2                |            |                    |                                                                                     |
|                 |            | Grey c-f SAND, tr silt (wet) [FILL]                                  |                   | 0 17        | 9           | SS   | 3             | 1                |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 18        |             |      |               | 1                |            |                    |                                                                                     |
|                 |            | Grey c-f SAND, tr silt, tr f gravel (wet) [FILL]                     |                   | 0 19        | 10          | SS   | 5             | 1                |            |                    |                                                                                     |
|                 |            |                                                                      |                   | 0 20        |             |      |               | 2                |            |                    |                                                                                     |

|                 |            |                                                         |                   |                     |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|-----------------|------------|---------------------------------------------------------|-------------------|---------------------|-------------|---------|-------------|------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Project         |            | PSE&G FORMER HOBOKEN GAS WORKS                          |                   | Project No.         |             | 9164901 |             |                        |                                   |                                                                                                                                                                  |     |
| Location        |            | HOBOKEN, NJ                                             |                   | Elevation and Datum |             | Approx. |             |                        |                                   |                                                                                                                                                                  |     |
| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                      | PID Reading (ppm) | Depth Scale         | Sample Data |         |             |                        |                                   | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)                                                                              |     |
|                 |            |                                                         |                   |                     | Number      | Type    | Recon. (in) | Penetr. resist. BLU/in | N-Value (Blows/ft)<br>10 20 30 40 |                                                                                                                                                                  |     |
|                 |            | Grey f-c SAND, tr silt, tr f gravel (wet) [FILL]        | 0                 | 20                  |             |         |             | 1                      |                                   | MGP odor (22'-22.25')                                                                                                                                            |     |
|                 |            |                                                         | 0                 | 21                  | 11          | SS      | 9           | 7                      | 8                                 |                                                                                                                                                                  |     |
|                 |            | Grey f-c SAND, tr silt, tr f gravel (wet) [FILL]        | 44.3              | 22                  | 12          | SS      | 3           | 100/3"                 | Refusal                           |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 23                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 24                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            | Grey f-m SAND, tr silt, tr c sand (wet) [SP]            | 2.3               | 25                  | 13          | SS      | 7           | 4                      | 10                                | 11:36 Install casing to 31'.<br>End of boring at 31' on 05/14/07.<br>08:38 Restart boring on 05/15/07.<br>Use 6" roller bit to drill 10' into weathered bedrock. |     |
|                 |            |                                                         | 1.4               | 26                  |             |         |             | 6                      | 9                                 |                                                                                                                                                                  |     |
|                 |            | Grey f-m SAND, tr silt, tr c sand (wet) [SP]            | 0.5               | 27                  | 14          | SS      | 10          | 14                     | 21                                |                                                                                                                                                                  |     |
|                 |            |                                                         | 0.1               | 28                  |             |         |             | 10                     | 10                                |                                                                                                                                                                  |     |
|                 |            | Reddish white to white f-c SAND, tr f gravel (wet) [SW] | 0.1               | 29                  | 15          | SS      | 19          | 10                     | 40                                |                                                                                                                                                                  | 50' |
|                 |            |                                                         | 0.2               | 30                  |             |         |             | 59                     |                                   | 08:38 End of boring at 41'.<br>Start well installation.                                                                                                          |     |
|                 |            | White-grey f-c SAND, tr silt (wet) [WTHD ROCK]          | 0                 | 31                  | 16          | SS      | 8           | 19                     | 28                                |                                                                                                                                                                  | 87' |
|                 |            |                                                         | 0                 | 32                  |             |         |             | 59                     | 100/1"                            |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 33                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 34                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 35                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 36                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 37                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 38                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 39                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 40                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 41                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 42                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 43                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 44                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |
|                 |            |                                                         |                   | 45                  |             |         |             |                        |                                   |                                                                                                                                                                  |     |

MGP odor (22'-22.25')

11:36 Install casing to 31'.  
End of boring at 31' on 05/14/07.  
08:38 Restart boring on 05/15/07.  
Use 6" roller bit to drill 10' into weathered bedrock.

08:38 End of boring at 41'.  
Start well installation.

# **THE PARTNERSHIP BORING 2009**

Table 3.1: Summary of Soil Boring Data in the Vicinity of the Hoboken Construction Access Site

| Boring ID<br>(source)                        | Location<br>(approximate)                                                                                                                              | Description<br>(elevations are approximate, in feet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EPE-NJ-014w<br>(Transit Link<br>Consultants) | 45 feet southwest of the center of the<br>Hoboken Construction Access shaft;<br>located within the shaft area.<br><br>Jefferson Street<br>(unimproved) | <p>Surface Elevation: 0.0 feet</p> <p>0.0 to -6.0 feet: Gravel with some sand</p> <p>-8.0 to -10.0 feet: Brown peat and silty clay with some sand</p> <p>-12.0 to -24.0 feet: Dark gray organic clay, with some peat</p> <p>-24.0 to -56.0 feet: Gray marine silty clay with traces of sand</p> <p>-60.0 to -67.0 feet: Dark gray gravel with some sand and silty clay/clayey silt</p> <p>-69.8+ feet: Bedrock</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| PE-139w<br>(THE Parntership)                 | 55 feet north of the center of the Hoboken<br>Construction Access shaft; located within<br>the shaft area.<br><br>West Jefferson Street                | <p>Surface Elevation: 0.0 feet</p> <p>0.0 to -1.0 feet: Asphalt and gravel</p> <p>-1.0 to -6.0 feet: Gray/black/brown gravel with traces of silt and sand, brick fragments, ash, crushed cinder (Fill)</p> <p>-8.0 to -10.0 feet: Dark gray, organic clay with some gravel (fill)</p> <p>-10.0 to -12.0 feet: Dark brown silt with some gravel</p> <p>-15.0 to -17.0 feet: Dark gray, organic silt and clay with shell fragments</p> <p>-18.0 to -20.0 feet: Dark gray, clay, with shell fragments</p> <p>-20.0 to -37.0 feet: Dark gray, silty clay/silt and clay, with shell fragments</p> <p>-40.0 to -42.0 feet: Dark gray, silty clay</p> <p>-45.0 to -47.0 feet: Gray sand, with little silt, gravel, clay</p> <p>-50.0 to -52.0 feet: Red brown sand, with little gravel, silt</p> <p>-55.0 to -59.3 feet: Gray gravel with some sand, silt</p> <p>-60.0+ feet: Bedrock</p> |
| EPE-NJ-013<br>(Transit Link<br>Consultants)  | 100 feet west of the center of the Hoboken<br>Construction Access shaft.<br><br>77 West Eighteenth Street                                              | <p>Surface Elevation: 0.0 feet</p> <p>0.0 to -8.0 feet: Brown and black gravel with sand and silt</p> <p>-8.0 to -12.0 feet: Gray clay and silt with traces of sand</p> <p>-15.0 to -19.0 feet: Gray silty clay with traces of sand</p> <p>-19.0 to -21.0 feet: Gray clay with traces of silt</p> <p>-21.0 to -37.0 feet: Gray silty clay with traces of sand</p> <p>-37.0 to -39.0 feet: Gray gravel with traces of sand and silt</p> <p>-40.0 to -42.0 feet: Gray green gravel with traces of sand and silt</p> <p>-44.0+ feet: Bedrock</p>                                                                                                                                                                                                                                                                                                                                      |

Table 3.1: Summary of Soil Boring Data in the Vicinity of the Hoboken Construction Access Site (Cont.)

| Boring ID<br>(source; see below) | Location<br>(approximate)                                                                                                                        | Description<br>(elevations are approximate, in feet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PE-155w<br>(THE Parntership)     | 100 feet southwest of the center of the<br>Hoboken Construction Access shaft.<br><br>NJ Transit, Hudson-Bergen Light Rail<br>Transit (NJT HBLRT) | <b>Surface Elevation: 0.0 feet</b><br><br>0.0 to -12.0: Dark gray to black sand with silt, gravel, ash, cinder, and brick fragments<br>-15.0 to -17: Brown/gray silt with root fibers<br>-20.0 to -22.0: Gray clayey silt with organic fibers<br>-25.0 to -72.0: Gray silty clay with shell fragments<br>-75.0 to -82.0: Gray sand with gravel and a trace of clay<br>-85.0 to -91.3: Gray gravel with some sand and a trace of clayey silt<br><br>-95.0+ feet: Bedrock                                                          |
| EPE-NJ-015<br>(THE Parntership)  | 160 feet southeast of the center of the<br>Hoboken Construction Access shaft.<br><br>Eighteenth Street                                           | <b>Surface Elevation: 0.0 feet</b><br>0.0 to -8.0 feet: Brown/gray gravel, little sand, silt<br>-8.0 to -10.0 feet: Brown sand with little gravel<br>-15.0 to -77.0 feet: Black/gray silty clay with trace of sand<br>-79.0 to -81.0 feet: Brown peat, trace of sand<br>-85.0 to -87.0 feet: Gray gravel, with trace of sand<br>-90.0 to -94.0 feet: Tan/red clay and silt, some sand<br>-94.0 to -96.0 feet: Red sand, little clay and silt<br>-100.0 to -101.5 feet: Red/tan gravel, with little sand<br>-101.5+ feet: Bedrock |
| CE-NJ-1<br>(THE Partnership)     | 160 feet southwest of the center of the<br>Hoboken Construction Access shaft.<br><br>Eighteenth Street                                           | <b>Surface Elevation: 0.0 feet</b><br>0 to -5.0 feet: Black silt with sand, concrete, wood, gravel<br>-5.0 to -7.0 feet: Black sand with silt, glass, wood, brick, concrete<br>-15.0 to -22.0 feet: Gray, organic clay<br>-25.0 to -27.0 feet: Dark gray to black, organic clay<br>-30.0 to -32.0 feet: Dark gray, organic silt<br>-35.0 to -41.1 feet: White and gray gravel with traces of sand<br>-45.0+ feet: Bedrock                                                                                                        |
| CE-NJ-2<br>(THE Partnership)     | 250 feet southwest of the center of the<br>Hoboken Construction Access shaft.<br><br>Eighteenth Street                                           | <b>Surface Elevation: 0.0 feet</b><br>-5.0 to -7.0 feet: Dark gray organic silt with gravel, sand, brick, glass, concrete<br>-10.0 to -10.5 feet: Black peat<br>-10.5 to -12.0 feet: Dark olive gray organic silt                                                                                                                                                                                                                                                                                                                |

Table 3.1: Summary of Soil Boring Data in the Vicinity of the Hoboken Construction Access Site (Cont.)

| Boring ID<br>(source; see below)         | Location<br>(approximate)                                                                                                        | Description<br>(elevations are approximate, in feet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          |                                                                                                                                  | <p>-15.0 to -22.0 feet: Olive gray, organic clay with some silt</p> <p>-25.0 to -80.0 feet: Olive gray, organic clay with varying amounts of shell</p> <p>-80.0 to -87.0 feet: Black brown, organic silt (decomposed peat)</p> <p>-90.0 to -93.0 feet: Gray sand with traces of gravel</p> <p>-100.00 to -101.5 feet: Reddish brown to gray clay with some silt</p> <p>-101.5 to -112.0 feet: Reddish brown to gray clay with bands of gray gravel and clay</p> <p>-116.0+ feet: Bedrock</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| PE-223<br>(THE Partnership)              | <p>400 feet southwest of the center of the Hoboken Construction Access shaft.</p> <p>Off Clinton Street</p>                      | <p><b>Surface Elevation:</b> 0.0 feet</p> <p>0.0 to -6.0 feet: Gray sand with grave, asphalt, concrete (Fill).</p> <p>-6.0 to -12.0 feet: Dark gray sand with gravel, silt, brick, paper, asphalt, and concrete fragments</p> <p>-15.0 to -17.0 feet: Dark gray gravel with small amounts of silt, brick, asphalt fragments</p> <p>-20.0 to -21.5 feet: Gray/light brown sand with some silt.</p> <p>-21.5 to -22.0 feet: Dark gray, clayey silt and peat</p> <p>-25.0 to -62.0 feet: Gray/olive clay and silt with varying amounts of shell fragments</p> <p>-62.0 to -82.0 feet: Gray/olive clay and silt</p> <p>-85.0 to -87.0 feet: Gray/olive silty clay</p> <p>-90.0 to -102.0 feet: Gray/olive clay and silt</p> <p>-105.0 to -112.0 feet: Dark gray peat</p> <p>-115.0 to -117.0 feet: Gray gravel with traces of sand and silt</p> <p>-120.0 to -122.0 feet: Gray/reddish brown sand with some gravel and clayey silt</p> <p>-125.0 to -126.8 feet: Light gray/light brown sand, with some gravel and silt</p> <p>-130.0+: Bedrock</p> |
| EPE-NJ-016<br>(Transit Link Consultants) | <p>495 feet southeast of the center of the Hoboken Construction Access shaft.</p> <p>Corner of Grand and Seventeenth Streets</p> | <p><b>Surface Elevation:</b> 0.0 feet</p> <p>0.0 to -6.0 feet: Gravel fill</p> <p>-8.0 to -10.0 feet: Brown silt with some sand and gravel</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Boring ID<br>(source; see below)         | Location<br>(approximate)                                                                                       | Description<br>(elevations are approximate, in feet)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------------|-----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                          | (unimproved)                                                                                                    | <p>-14.0 feet: Metal obstruction; test shifted</p> <p>-15.0 to -17.0 feet: Red clayey silt and sand</p> <p>-20.0 to -102.0 feet: Dark gray marine clay with traces of sand</p> <p>-102.0 to -106.0 feet: Brown peat with traces of sand</p> <p>-110.0 to -117.0 feet: Till, dark red sand with some gravel.</p> <p>-123.8 feet: Possible top of rock</p>                                                                                                                                                                                                       |
| CE-NJ-3<br>(Transit Link<br>Consultants) | <p>805 feet southwest of the center of the<br/>Hoboken Construction Access shaft.</p> <p>St. Lawrence Place</p> | <p><b>Surface Elevation:</b> 0.0 feet</p> <p>-1.0 to -4.0 feet: Coal slag</p> <p>-15.0 to -17.0 feet: Gray gravel with some sand, silt, concrete</p> <p>-20.0 to -22.0 feet: Gray sand with some silt</p> <p>-25.0 to -73.0 feet: Dark olive gray, organic silt and clay with<br/>varying amounts of shell</p> <p>-75.0 to -82.0 feet: Brown/black peat with silt</p> <p>-85.0 to -95.7 feet: Gray to red brown, silt and clay with some sand</p> <p>-100.0 to -101.4 feet: Tan pink-green sand with some silt and<br/>gravel</p> <p>-108.5+ feet: Bedrock</p> |

Source: THE Partnership, 2009

**WARREN GEORGE BORING SINATRA PARK  
2010**

## SH. 1 OF 3

**BORING NO.** DB-1

OFFSET:

COORDINATES:

NORTH:

EAST:

FINAL BORING DEPTH (FT)-77'

### GROUND WATER READINGS

STABILIZATION TIME

Initial reading

Initial reading

DATE END : 08/26/2010

NOTES:

- 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.
- 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.
- 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)

| GRANULAR SOILS |              | COHESIVE SOILS |           |
|----------------|--------------|----------------|-----------|
| 0-4            | VERY LOOSE   | <2             | VERY SOFT |
| 4-10           | LOOSE        | 2-4            | SOFT      |
| 10-30          | MEDIUM DENSE | 4-8            | M. STIFF  |
| 30-50          | DENSE        | 8-15           | STIFF     |
| >50            | VERY DENSE   | 15-30          | V. STIFF  |
|                |              | >30            | HARD      |



**BORING NO.DB-1**

## SH. 2 OF 3

**BORING NO.** DB-1

|                             |  |              |  |
|-----------------------------|--|--------------|--|
| BORING STATION:             |  | OFFSET:      |  |
| PROJECT NO: 10081           |  | COORDINATES: |  |
| G. SURF. EL. (FT) 9.8       |  | NORTH:       |  |
| DATUM                       |  | EAST:        |  |
| FINAL BORING DEPTH (FT)-77' |  |              |  |

|                        |                               |                       |      |            |        |                    |
|------------------------|-------------------------------|-----------------------|------|------------|--------|--------------------|
| SAMPLER: MANUAL        | BORING CO: WARREN GEORGE, INC | GROUND WATER READINGS |      |            |        |                    |
| SAMPLER HAMMER: MANUAL | FOREMAN: RENOLDS,WILLIAMS     | DATE                  | TIME | DEPTH (FT) | CASING | STABILIZATION TIME |
| CASING SIZE:4"         | ENGINEER:RUMIT PANDYA         | 8/25/2010             |      | 7          |        | Initial reading    |
| CASING HAMMER:MANUAL   | DATE START: 08/25/2010        | 8/26/2010             |      | 7          |        | Initial reading    |
| ROCK CORE:NX           | DATE END : 08/26/2010         |                       |      |            |        |                    |

[illegible]

NOTES:

- 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.
- 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.
- 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)

| GRANULAR SOILS |              | COHESIVE SOILS |           |
|----------------|--------------|----------------|-----------|
| 0-4            | VERY LOOSE   | <2             | VERY SOFT |
| 4-10           | LOOSE        | 2-4            | SOFT      |
| 10-30          | MEDIUM DENSE | 4-8            | M. STIFF  |
| 30-50          | DENSE        | 8-15           | STIFF     |
| >50            | VERY DENSE   | 15-30          | V. STIFF  |
|                |              | >30            | HARD      |



*Distinct Engineering, Solution, Inc.*  
656 Georges Road, North Brunswick, NJ 08902

BORING NO,DB-1

| BORING LOG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              | SH. 3 OF 3 |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-------------------|--------------|----------------|-------------------------------|------------------------------------------------------|--------------------|---------|-------------|-----------------------------------------------------|---------------|--------------|------------|--------------------|--------------|----------------|--|-----|------------|----|-----------|------|-------|-----|------|-------|--------------|-----|----------|-------|-------|------|-------|-----|------------|-------|----------|--|--|-----|------|
| Sketch( With North Arrow)SINATRA PARK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                |                   |              |                |                               |                                                      |                    |         |             | BORING NO. DB-1                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                |                   |              |                |                               |                                                      |                    |         |             | BORING STATION:                                     |               |              |            |                    | OFFSET:      |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                |                   |              |                |                               |                                                      |                    |         |             | PROJECT NO: 10081                                   |               |              |            |                    | COORDINATES: |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                |                   |              |                |                               |                                                      |                    |         |             | G. SURF. EL. (FT) 9.8                               |               |              |            |                    | NORTH:       |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                |                   |              |                |                               |                                                      |                    |         |             | DATUM                                               |               |              |            |                    | EAST:        |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| FINAL BORING DEPTH (FT)-77'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                |                   |              |                | BORING CO: WARREN GEORGE, INC |                                                      |                    |         |             | GROUND WATER READINGS                               |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER HAMMER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                |                   |              |                | FOREMAN: RENOLDS,WILLIAMS     |                                                      |                    |         |             | DATE                                                | TIME          | DEPTH (FT)   | CASING     | STABILIZATION TIME |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING SIZE:4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |                   |              |                | ENGINEER:RUMIT PANDYA         |                                                      |                    |         |             | 8/25/2010                                           |               | 7            |            | Initial reading    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING HAMMER:MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                |                   |              |                | DATE START: 08/25/2010        |                                                      |                    |         |             | 8/26/2010                                           |               | 7            |            | Initial reading    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| ROCK CORE:NX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                |                   |              |                | DATE END : 08/26/2010         |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| DEPTH (FT)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CASING(BPF)/<br>CORING (MINFT) | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE                       | SOIL PEN. / REC.(IN / IN)<br>ROCK PEN. / REC.(FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS | STRATA SYMBOL | STRATIGRAPHY | NOTES      |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 61                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                | S13               | 60'-62'      | 10,14          | 33                            | 14"                                                  | NA                 | NA      | NA          | Reddish Brown F SAND, some Silt, micaceous(moist)   | SP-SM         |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 62                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              | 19,30          |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 66                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                | S14               | 65'-67'      | 5,16           | 42                            | 16"                                                  | NA                 | NA      | NA          | Reddish Brown M-F SAND,some Silt(moist)             | SP-SM         |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 67                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              | 26,30          |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 68                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 69                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 70                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 71                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                | S15               | 70'-72'      | 13,25          | 56                            | 14"                                                  | NA                 | NA      | NA          | Reddish Brown M-F SAND, little Silt(moist)          | SP-SM         |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 72                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              | 31,29          |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 73                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 74                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 76                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                | S16               | 75'-77'      | 14,22          | 48                            | 14"                                                  | NA                 | NA      | NA          | Reddish Brown M-F SAND, little Silt(moist)          | SP-SM         |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 77                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              | 26,25          |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 78                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             | EOB @ 77'                                           |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 79                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 81                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 82                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 83                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 84                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 85                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 86                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 87                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 88                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 89                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| NOTES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| <div><div></div><div><div>Distinct Engineering, Solution, Inc.</div><div>656 Georges Road, North Brunswick, NJ 08902</div></div></div> <div><table><tr><th colspan="2">GRANULAR SOILS</th><th colspan="2">COHESIVE SOILS</th></tr><tr><td>0-4</td><td>VERY LOOSE</td><td>&lt;2</td><td>VERY SOFT</td></tr><tr><td>4-10</td><td>LOOSE</td><td>2-4</td><td>SOFT</td></tr><tr><td>10-30</td><td>MEDIUM DENSE</td><td>4-8</td><td>M. STIFF</td></tr><tr><td>30-50</td><td>DENSE</td><td>8-15</td><td>STIFF</td></tr><tr><td>&gt;50</td><td>VERY DENSE</td><td>15-30</td><td>V. STIFF</td></tr><tr><td></td><td></td><td>&gt;30</td><td>HARD</td></tr></table></div> |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            | GRANULAR SOILS     |              | COHESIVE SOILS |  | 0-4 | VERY LOOSE | <2 | VERY SOFT | 4-10 | LOOSE | 2-4 | SOFT | 10-30 | MEDIUM DENSE | 4-8 | M. STIFF | 30-50 | DENSE | 8-15 | STIFF | >50 | VERY DENSE | 15-30 | V. STIFF |  |  | >30 | HARD |
| GRANULAR SOILS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                | COHESIVE SOILS    |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 0-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | VERY LOOSE                     | <2                | VERY SOFT    |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 4-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | LOOSE                          | 2-4               | SOFT         |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 10-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MEDIUM DENSE                   | 4-8               | M. STIFF     |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 30-50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DENSE                          | 8-15              | STIFF        |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| >50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | VERY DENSE                     | 15-30             | V. STIFF     |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                | >30               | HARD         |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| BORING NO.DB-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |                   |              |                |                               |                                                      |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |

| BORING LOG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              | SH. 1 OF 4                             |                    |              |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-------------------|--------------|----------------|-------------------------------|----------------------------------------------------|--------------------|---------|-------------|----------------------------------------------------------------------------|---------------|--------------|----------------------------------------|--------------------|--------------|--|--|--|--|
| Sketch( With North) <b>SINATRA PARK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                   |                   |              |                |                               |                                                    |                    |         |             | BORING NO. <b>DB-2</b>                                                     |               |              |                                        |                    |              |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |                   |              |                |                               |                                                    |                    |         |             | BORING STATION:                                                            |               |              |                                        |                    | OFFSET:      |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |                   |              |                |                               |                                                    |                    |         |             | PROJECT NO: <b>10081</b>                                                   |               |              |                                        |                    | COORDINATES: |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |                   |              |                |                               |                                                    |                    |         |             | G. SURF. EL. (FT) <b>10.4</b>                                              |               |              |                                        |                    | NORTH:       |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |                   |              |                |                               |                                                    |                    |         |             | DATUM                                                                      |               |              |                                        |                    | EAST:        |  |  |  |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |                   |              |                |                               |                                                    |                    |         |             | FINAL BORING DEPTH (FT): <b>100'.1"</b>                                    |               |              |                                        |                    |              |  |  |  |  |
| SAMPLER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                   |                   |              |                | BORING CO: WARREN GEORGE, INC |                                                    |                    |         |             | GROUND WATER READINGS                                                      |               |              |                                        |                    |              |  |  |  |  |
| SAMPLER HAMMER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |                   |              |                | FOREMAN: RENOLDS,WILLIAMS     |                                                    |                    |         |             | DATE                                                                       | TIME          | DEPTH (FT)   | CASING                                 | STABILIZATION TIME |              |  |  |  |  |
| CASING SIZE:4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                   |                   |              |                | ENGINEER:RUMIT PANDYA         |                                                    |                    |         |             | 8/26/2010                                                                  |               | 7            |                                        | Initial reading    |              |  |  |  |  |
| CASING HAMMER:MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                   |                   |              |                | DATE START: 08/26/2010        |                                                    |                    |         |             | 8/27/2010                                                                  |               | 7            |                                        | Initial reading    |              |  |  |  |  |
| ROCK CORE:NX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                   |              |                | DATE END : 08/27/2010         |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| DEPTH (FT)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CORING<br>C/SING(BPF)<br>(MIN/FT) | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE                       | SOIL PEN / REC.(IN / IN)<br>ROCK PEN / REC.(FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS                        | STRATA SYMBOL | STRATIGRAPHY | NOTES                                  |                    |              |  |  |  |  |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   | S1                | 0'-2'        | 10,10          | 34                            | 12"                                                | NA                 | NA      | NA          | Brown C-F SAND, some C-M Gravel, trace Silt, trace Bricks fragments(moist) | FILL          |              |                                        |                    |              |  |  |  |  |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                   |              | 24,26          |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   | S2                | 5'-7'        | 8,8            | 20                            | 8"                                                 | NA                 | NA      | NA          | Brown M-F SAND and C-F GRAVEL, trace Silt, trace Bricks fragments(wet)     | FILL          |              |                                        |                    |              |  |  |  |  |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                   |              | 12,5           |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | S3                | 10'-12'      | 15             | 100                           | 3"                                                 | NA                 | NA      | NA          | Brown M-F SAND, some C-F Gravel(wet)                                       | FILL          |              | Wood Pieces ar the bottom of the spoon |                    |              |  |  |  |  |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              | 2">100         |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | S4                | 13'-15'      | WR, WR         | WR                            | 8"                                                 | NA                 | NA      | NA          | Dark Gray Silty CLAY(wet)                                                  | OL            |              |                                        |                    |              |  |  |  |  |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              | WR,WR          |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | S5                | 20'-22'      | WR,WR          | WR                            | 24"                                                | NA                 | NA      | NA          | Dark Gray Silty CLAY(Wet)                                                  | OL            |              | Lost mud @ 19 to 20 feet               |                    |              |  |  |  |  |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              | WR,WR          |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   | S6                | 25'-27'      | WR,WR          | WR                            | NR                                                 | NA                 | NA      | NA          | No Recovery                                                                |               |              |                                        |                    |              |  |  |  |  |
| 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              | WR,WR          |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| NOTES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.                                                                                                                                                                                                                                                                                                                                    |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)                                                                                                                                                                                                                                                                                   |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| <div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><b>Distinct Engineering Solution,Inc.</b><br/>656 Georges Road, North Brunswick, NJ 08902</div></div>                                                                                                                                                                                                                                                                           |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| <div><div>GRANULAR SOILS</div><div>COHESIVE SOILS</div><div><div>0-4</div><div>VERY LOOSE</div><div>&lt;2</div><div>VERY SOFT</div></div><div><div>4-10</div><div>LOOSE</div><div>2-4</div><div>SOFT</div></div><div><div>10-30</div><div>MEDIUM DENSE</div><div>4-8</div><div>M. STIFF</div></div><div><div>30-50</div><div>DENSE</div><div>8-15</div><div>STIFF</div></div><div><div>&gt;50</div><div>VERY DENSE</div><div>15-30</div><div>V. STIFF</div></div><div><div></div><div></div><div>&gt;30</div><div>HARD</div></div></div> |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |
| BORING NO.DB-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                   |                   |              |                |                               |                                                    |                    |         |             |                                                                            |               |              |                                        |                    |              |  |  |  |  |

## SH. 2 OF 4

**BORING NO.** DB-2

BORING STATION: \_\_\_\_\_ OFFSET: \_\_\_\_\_

PROJECT NO: 10081

COORDINATES:

|                   |      |
|-------------------|------|
| G. SURF. EL. (FT) | 10.4 |
|-------------------|------|

NORTH:

DATUM

EAST:

FINAL BORING DEPTH (FT)-100'.1"

### GROUND WATER READINGS

DATE \_\_\_\_\_

TIME

|  | DEPTH (FT) |
|--|------------|
|--|------------|

## LEASING

STABILIZATION TIME

8/31/2010

---

7

Initial reading

9/1/2010

---

7

Initial reading

DATE END : 09/01/2010

[illegible]

1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.

2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.

3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)

| GRANULAR SOILS |              | COHESIVE SOILS |           |
|----------------|--------------|----------------|-----------|
| 0-4            | VERY LOOSE   | <2             | VERY SOFT |
| 4-10           | LOOSE        | 2-4            | SOFT      |
| 10-30          | MEDIUM DENSE | 4-8            | M. STIFF  |
| 30-50          | DENSE        | 8-15           | STIFF     |
| >50            | VERY DENSE   | 15-30          | V. STIFF  |
|                |              | >30            | HARD      |



*Distinct Engineering, Solution, Inc.*  
656 Georges Road, North Brunswick, NJ 08902

**BORING NO.DB-2**

| BORING LOG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               | SH. 3 OF 4   |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------|--------------|----------------|-------------------------------|---------------------------|--------------------------|--------------------|---------|---------------------------------|----------------------------------------------------------|---------------|--------------|--------------------|----------------|--|----------------|--|-----|------------|----|-----------|------|-------|-----|------|-------|--------------|-----|----------|-------|-------|------|-------|-----|------------|-------|----------|--|--|-----|------|
| Sketch( With North)SINATRA PARK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                   |              |                |                               |                           |                          |                    |         | BORING NO. DB-2                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                   |              |                |                               |                           |                          |                    |         | BORING STATION:                 |                                                          |               |              | OFFSET:            |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                   |              |                |                               |                           |                          |                    |         | PROJECT NO: 10081               |                                                          |               |              | COORDINATES:       |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                   |              |                |                               |                           |                          |                    |         | G. SURF. EL. (FT) 10.4          |                                                          |               |              | NORTH:             |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                   |              |                |                               |                           |                          |                    |         | DATUM                           |                                                          |               |              | EAST:              |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                   |              |                |                               |                           |                          |                    |         | FINAL BORING DEPTH (FT)-100'.1" |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                   |              |                | BORING CO: WARREN GEORGE, INC |                           |                          |                    |         | GROUND WATER READINGS           |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER HAMMER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                | FOREMAN: RENOLDS,WILLIAMS     |                           |                          |                    |         | DATE                            | TIME                                                     | DEPTH (FT)    | CASING       | STABILIZATION TIME |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING SIZE:4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                   |              |                | ENGINEER:RUMIT PANDYA         |                           |                          |                    |         | 8/31/2010                       |                                                          | 7             |              | Initial reading    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING HAMMER:MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                 |                   |              |                | DATE START: 08/31/2010        |                           |                          |                    |         | 9/1/2010                        |                                                          | 7             |              | Initial reading    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| ROCK CORE:NX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                 |                   |              |                | DATE END : 09/01/2010         |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| DEPTH (FT)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | CORING (MIN/FT) | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE                       | SOIL PEN. / REC. (IN/ IN) | ROCK PEN. / REC. (FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING                     | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS      | STRATA SYMBOL | STRATIGRAPHY | NOTES              |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 61                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | S13               | 60'-62'      | 17,17          | 40                            | 14"                       | NA                       | NA                 | NA      |                                 | Reddish Brown M-F SAND, little Silt(wet)                 | SP-SM         |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 62                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              | 23,24          |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 63                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 65                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 66                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | S14               | 65'-67'      | 10,18          | 41                            | 24"                       | NA                       | NA                 | NA      |                                 | Reddish Brown M-F SAND, little Silt(Wet)                 | SP-SM         |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 67                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              | 23,26          |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 68                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 69                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 70                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 71                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | S15               | 70'-72'      | 21,30          | 52                            | 24"                       | NA                       | NA                 | NA      |                                 | Reddish Brown M-F SAND, little Silt, trace F Gravel(wet) | SP-SM         |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 72                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              | 22, 22         |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 73                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 74                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 75                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 76                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | S16               | 75'-77'      | 1">100         | 100                           |                           | NA                       | NA                 | NA      |                                 | Decomposed SERPANTENITE                                  |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 77                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 78                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 79                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 80                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 81                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | S17               | 80'-82'      | 37             | 100                           | 4"                        | NA                       | NA                 | NA      |                                 | Decomposed SERPENTINE, trace Clay(wet)                   |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 82                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              | 1">100         |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 83                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 84                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 85                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 86                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | S18               | 85'-87'      | 3">100         | 100                           | 2"                        | NA                       | NA                 | NA      |                                 | Decomposed SERPENTINE, trace Clay(wet)                   |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 87                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 88                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 89                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 90                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| NOTES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| <div><div><div><div>E</div><div>D</div><div>S</div></div><div>Distinct Engineering Solution, Inc.</div><div>656 Georges Road, North Brunswick, NJ 08902</div></div><div><table><tr><th colspan="2">GRANULAR SOILS</th><th colspan="2">COHESIVE SOILS</th></tr><tr><td>0-4</td><td>VERY LOOSE</td><td>&lt;2</td><td>VERY SOFT</td></tr><tr><td>4-10</td><td>LOOSE</td><td>2-4</td><td>SOFT</td></tr><tr><td>10-30</td><td>MEDIUM DENSE</td><td>4-8</td><td>M. STIFF</td></tr><tr><td>30-50</td><td>DENSE</td><td>8-15</td><td>STIFF</td></tr><tr><td>&gt;50</td><td>VERY DENSE</td><td>15-30</td><td>V. STIFF</td></tr><tr><td></td><td></td><td>&gt;30</td><td>HARD</td></tr></table></div></div> |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    | GRANULAR SOILS |  | COHESIVE SOILS |  | 0-4 | VERY LOOSE | <2 | VERY SOFT | 4-10 | LOOSE | 2-4 | SOFT | 10-30 | MEDIUM DENSE | 4-8 | M. STIFF | 30-50 | DENSE | 8-15 | STIFF | >50 | VERY DENSE | 15-30 | V. STIFF |  |  | >30 | HARD |
| GRANULAR SOILS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 | COHESIVE SOILS    |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 0-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | VERY LOOSE      | <2                | VERY SOFT    |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 4-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | LOOSE           | 2-4               | SOFT         |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 10-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | MEDIUM DENSE    | 4-8               | M. STIFF     |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 30-50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DENSE           | 8-15              | STIFF        |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| >50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | VERY DENSE      | 15-30             | V. STIFF     |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 | >30               | HARD         |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| BORING NO.DB-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                   |              |                |                               |                           |                          |                    |         |                                 |                                                          |               |              |                    |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |

| BORING LOG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              | SH. 4 OF 4 |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------|--------------|----------------|-------------------------------|----------------------------------------------------|--------------------|---------|-------------|-----------------------------------------------------|---------------|--------------|------------|--------------------|--------------|----------------|--|-----|------------|----|-----------|------|-------|-----|------|-------|--------------|-----|----------|-------|-------|------|-------|-----|------------|-------|----------|--|--|-----|------|
| Sketch( With North Arrow) <b>SINATRA PARK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                 |                   |              |                |                               |                                                    |                    |         |             | BORING NO. <b>DB-2</b>                              |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |                   |              |                |                               |                                                    |                    |         |             | BORING STATION:                                     |               |              |            |                    | OFFSET:      |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |                   |              |                |                               |                                                    |                    |         |             | PROJECT NO: <b>10081</b>                            |               |              |            |                    | COORDINATES: |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |                   |              |                |                               |                                                    |                    |         |             | G. SURF. EL. (FT) <b>10.4</b>                       |               |              |            |                    | NORTH:       |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |                   |              |                |                               |                                                    |                    |         |             | DATUM                                               |               |              |            |                    | EAST:        |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| FINAL BORING DEPTH (FT): <b>100'.1"</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |                   |              |                | BORING CO: WARREN GEORGE, INC |                                                    |                    |         |             | GROUND WATER READINGS                               |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER HAMMER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |                   |              |                | FOREMAN: RENOLDS,WILLIAMS     |                                                    |                    |         |             | DATE                                                | TIME          | DEPTH (FT)   | CASING     | STABILIZATION TIME |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING SIZE:4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                | ENGINEER:RUMIT PANDYA         |                                                    |                    |         |             | 8/31/2010                                           |               | 7            |            | Initial reading    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING HAMMER:MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |                   |              |                | DATE START: 08/31/2010        |                                                    |                    |         |             | 9/1/2010                                            |               | 7            |            | Initial reading    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| ROCK CORE:NX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                 |                   |              |                | DATE END : 09/01/2010         |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| DEPTH (FT)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CORING (MIN/FT) | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE                       | SOIL PEN. / REC. (IN / IN) ROCK PEN. / REC.(FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS | STRATA SYMBOL | STRATIGRAPHY | NOTES      |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 91                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 | S19               | 90'-92'      | 0>100          | 100                           | NR                                                 | NA                 | NA      | NA          | No Recovery                                         |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 92                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 93                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 94                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 95                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 | S20               | 95'-97'      | 2">100         | 100                           | 2"                                                 | NA                 | NA      | NA          | Decomposed SERPENTINE, trace clay                   |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 96                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 97                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 98                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 99                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 101                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 | S21               | 100'-102'    | 1">100         | 100                           | 0                                                  | NA                 | NA      | NA          | Decomposed SERPENTINE, trace Clay                   |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 102                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             | EOB @ 100'.1"                                       |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 103                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 104                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 105                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 106                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 107                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 108                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 109                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 110                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 111                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 112                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 113                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 114                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 115                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 116                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 117                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 118                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 119                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| NOTES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.                                                                                                                                                                                                                                                                                                         |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                             |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)                                                                                                                                                                                                                                                        |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| <div><div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div><div><div></div><div></div><div></div></div></div><div><b>Distinct Engineering, Solution, Inc.</b><br/>656 Georges Road, North Brunswick, NJ 08902</div></div>                                                                                                                                                                                                                                              |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| <table><tr><th colspan="2">GRANULAR SOILS</th><th colspan="2">COHESIVE SOILS</th></tr><tr><td>0-4</td><td>VERY LOOSE</td><td>&lt;2</td><td>VERY SOFT</td></tr><tr><td>4-10</td><td>LOOSE</td><td>2-4</td><td>SOFT</td></tr><tr><td>10-30</td><td>MEDIUM DENSE</td><td>4-8</td><td>M. STIFF</td></tr><tr><td>30-50</td><td>DENSE</td><td>8-15</td><td>STIFF</td></tr><tr><td>&gt;50</td><td>VERY DENSE</td><td>15-30</td><td>V. STIFF</td></tr><tr><td></td><td></td><td>&gt;30</td><td>HARD</td></tr></table> |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            | GRANULAR SOILS     |              | COHESIVE SOILS |  | 0-4 | VERY LOOSE | <2 | VERY SOFT | 4-10 | LOOSE | 2-4 | SOFT | 10-30 | MEDIUM DENSE | 4-8 | M. STIFF | 30-50 | DENSE | 8-15 | STIFF | >50 | VERY DENSE | 15-30 | V. STIFF |  |  | >30 | HARD |
| GRANULAR SOILS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 | COHESIVE SOILS    |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 0-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | VERY LOOSE      | <2                | VERY SOFT    |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 4-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | LOOSE           | 2-4               | SOFT         |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 10-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | MEDIUM DENSE    | 4-8               | M. STIFF     |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 30-50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DENSE           | 8-15              | STIFF        |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| >50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | VERY DENSE      | 15-30             | V. STIFF     |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 | >30               | HARD         |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| BORING NO.DB-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                 |                   |              |                |                               |                                                    |                    |         |             |                                                     |               |              |            |                    |              |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |

| BORING LOG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              | SH. 1 OF 2         |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-------------------|--------------|----------------|-------------------------------|--------------------------|------------------------|--------------------|---------|-------------------------|---------------------------------------------------------------------------------|---------------|--------------|--------------------|----------------------------------|----------------|--|----------------|--|-----|------------|----|-----------|------|-------|-----|------|-------|--------------|-----|----------|-------|-------|------|-------|-----|------------|-------|----------|--|--|-----|------|
| Sketch( With North Arrow) SINATRA PARK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |                   |              |                |                               |                          |                        |                    |         | BORING NO. DB-3         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                   |              |                |                               |                          |                        |                    |         | BORING STATION:         |                                                                                 |               |              | OFFSET:            |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                   |              |                |                               |                          |                        |                    |         | PROJECT NO: 10081       |                                                                                 |               |              | COORDINATES:       |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                   |              |                |                               |                          |                        |                    |         | G. SURF. EL. (FT) 10.60 |                                                                                 |               |              | NORTH:             |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                   |              |                |                               |                          |                        |                    |         | DATUM                   |                                                                                 |               |              | EAST:              |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| FINAL BORING DEPTH (FT)- 57'                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              |                   |              |                | BORING CO: WARREN GEORGE, INC |                          |                        |                    |         | GROUND WATER READINGS   |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER HAMMER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |                   |              |                | FOREMAN: RENOLDS,WILLIAMS     |                          |                        |                    |         | DATE                    | TIME                                                                            | DEPTH (FT)    | CASING       | STABILIZATION TIME |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING SIZE:4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                   |              |                | ENGINEER:RUMIT PANDYA         |                          |                        |                    |         | 8/30/2010               |                                                                                 | 7             |              | Initial reading    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING HAMMER:MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                              |                   |              |                | DATE START: 08/30/2010        |                          |                        |                    |         | 8/31/2010               |                                                                                 | 7             |              | Initial reading    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| ROCK CORE:NX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              |                   |              |                | DATE END : 08/31/2010         |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| DEPTH (FT)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | CORING CASING(BPF)/ (MIN/FT) | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE                       | SOL PEN. / REC (IN / IN) | ROCK PEN. / REC.(FIFT) | TOTAL CORE REC (%) | RQD (%) | PID READING             | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS                             | STRATA SYMBOL | STRATIGRAPHY | NOTES              |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              | S1                | 0'-2'        | 15,19          | 47                            | 12"                      | NA                     | NA                 | NA      |                         | Dark Brown M-F SAND, some C-M Gravel, trace Silt, trace Bricks fragments(moist) | FILL          |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                   |              | 28,3"/100      |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              | S2                | 5'-7'        | 6,2            | 4                             | 6"                       | NA                     | NA                 | NA      |                         | Dark Gray M-F SAND and M-F GRAVEL, trace Silt(wet)                              | FILL          |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                   |              | 2,2            |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              | S3                | 10'-12'      | 21,32          | 35                            |                          | NA                     | NA                 | NA      |                         | Dark Gray M-F SAND, trace Silt(wet)                                             | FILL          |              |                    | Wood fragment in the split spoon |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              | 3,1            |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              | S4                | 15'-17'      | WR,WR          | WR                            | NR                       | NA                     | NA                 | NA      |                         | No Recovery                                                                     | OL            |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              | WR,WR          |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    | Lost mud @ 19 to 20 feet         |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              | S5                | 20'-22'      | WR,WR          | WR                            | 16"                      | NA                     | NA                 | NA      |                         | Dark Gray Silty CLAY(Wet)                                                       |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              | WR,WR          |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              | S6                | 25'-27'      | 25,12          | 20                            | 4"                       | NA                     | NA                 | NA      |                         | Wood with trace Clay                                                            |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              | 8,8            |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| NOTES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| <div><div><div><div>E</div><div>S</div><div>O</div><div>L</div></div><div><div>Distinct Engineering, Solution,Inc.</div><div>656 Georges Road, North Brunswick, NJ 08902</div></div></div><div><table><tr><th colspan="2">GRANULAR SOILS</th><th colspan="2">COHESIVE SOILS</th></tr><tr><td>0-4</td><td>VERY LOOSE</td><td>&lt;2</td><td>VERY SOFT</td></tr><tr><td>4-10</td><td>LOOSE</td><td>2-4</td><td>SOFT</td></tr><tr><td>10-30</td><td>MEDIUM DENSE</td><td>4-8</td><td>M. STIFF</td></tr><tr><td>30-50</td><td>DENSE</td><td>8-15</td><td>STIFF</td></tr><tr><td>&gt;50</td><td>VERY DENSE</td><td>15-30</td><td>V. STIFF</td></tr><tr><td></td><td></td><td>&gt;30</td><td>HARD</td></tr></table></div></div> |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  | GRANULAR SOILS |  | COHESIVE SOILS |  | 0-4 | VERY LOOSE | <2 | VERY SOFT | 4-10 | LOOSE | 2-4 | SOFT | 10-30 | MEDIUM DENSE | 4-8 | M. STIFF | 30-50 | DENSE | 8-15 | STIFF | >50 | VERY DENSE | 15-30 | V. STIFF |  |  | >30 | HARD |
| GRANULAR SOILS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              | COHESIVE SOILS    |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 0-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | VERY LOOSE                   | <2                | VERY SOFT    |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 4-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | LOOSE                        | 2-4               | SOFT         |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 10-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | MEDIUM DENSE                 | 4-8               | M. STIFF     |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 30-50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | DENSE                        | 8-15              | STIFF        |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| >50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | VERY DENSE                   | 15-30             | V. STIFF     |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                              | >30               | HARD         |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| BORING NO.DB-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                              |                   |              |                |                               |                          |                        |                    |         |                         |                                                                                 |               |              |                    |                                  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |

| BORING LOG                                    |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              | SH. 2 OF 2         |  |                           |
|-----------------------------------------------|-----------------|-------------------|--------------|----------------|-------------------------------|-------------------------|------------------------|--------------------|---------|-------------------------------------|-----------------------------------------------------------------|---------------|--------------|--------------------|--|---------------------------|
| Sketch( With North Arrow) <b>SINATRA PARK</b> |                 |                   |              |                |                               |                         |                        |                    |         | BORING NO. <b>DB-3</b>              |                                                                 |               |              |                    |  |                           |
|                                               |                 |                   |              |                |                               |                         |                        |                    |         | BORING STATION:                     |                                                                 |               |              | OFFSET:            |  |                           |
|                                               |                 |                   |              |                |                               |                         |                        |                    |         | PROJECT NO: <b>10081</b>            |                                                                 |               |              | COORDINATES:       |  |                           |
|                                               |                 |                   |              |                |                               |                         |                        |                    |         | G. SURF. EL. (FT) <b>10.60</b>      |                                                                 |               |              | NORTH:             |  |                           |
|                                               |                 |                   |              |                |                               |                         |                        |                    |         | DATUM                               |                                                                 |               |              | EAST:              |  |                           |
|                                               |                 |                   |              |                |                               |                         |                        |                    |         | FINAL BORING DEPTH (FT)- <b>57'</b> |                                                                 |               |              |                    |  |                           |
| SAMPLER: MANUAL                               |                 |                   |              |                | BORING CO: WARREN GEORGE, INC |                         |                        |                    |         | GROUND WATER READINGS               |                                                                 |               |              |                    |  |                           |
| SAMPLER HAMMER: MANUAL                        |                 |                   |              |                | FOREMAN: RENOLDS,WILLIAMS     |                         |                        |                    |         | DATE                                | TIME                                                            | DEPTH (FT)    | CASING       | STABILIZATION TIME |  |                           |
| CASING SIZE:4"                                |                 |                   |              |                | ENGINEER:RUMIT PANDYA         |                         |                        |                    |         | 8/31/2010                           |                                                                 | 7             |              | Initial reading    |  |                           |
| CASING HAMMER:MANUAL                          |                 |                   |              |                | DATE START: 08/31/2010        |                         |                        |                    |         | 9/1/2010                            |                                                                 | 7             |              | Initial reading    |  |                           |
| ROCK CORE:NX                                  |                 |                   |              |                | DATE END : 09/01/2010         |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| DEPTH (FT)                                    | CORING (MIN/FT) | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE                       | SOL PEN / REC.(IN / IN) | ROCK PEN / REC.(FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING                         | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS             | STRATA SYMBOL | STRATIGRAPHY | NOTES              |  |                           |
| 31                                            |                 | S7                | 30'-32'      | 18,17          | 40                            |                         |                        | NA                 | NA      | NA                                  | Wood                                                            | OL            |              |                    |  |                           |
| 32                                            |                 |                   |              | 23,21          |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 33                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 34                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 35                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 36                                            |                 | S8                | 35'-37'      | 2,2            | 5                             | 14"                     |                        | NA                 | NA      | NA                                  | Dark Gray Silty CLAY(wet)                                       |               |              |                    |  |                           |
| 37                                            |                 |                   |              | 3,2            |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 38                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 39                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 40                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 41                                            |                 | S9                | 40'-42'      | WR,WR          | WR                            | NR                      |                        | NA                 | NA      | NA                                  | NO Reovery                                                      | SM            |              |                    |  |                           |
| 42                                            |                 |                   |              | WR,WR          |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 43                                            |                 | S11               | 42'-44'      | 4,12           | 24                            | 10"                     |                        | NA                 | NA      | NA                                  | Dark Gray M-F Silty SAND, trace Clay(wet)                       |               |              |                    |  |                           |
| 44                                            |                 |                   |              | 12,12          |                               |                         |                        |                    |         |                                     |                                                                 | OL            |              |                    |  |                           |
| 45                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 46                                            |                 | S10               | 45'-47'      | 4">100         | 100                           | 4"                      |                        | NA                 | NA      | NA                                  | Dark Gray Silty CLAY(wet)                                       |               |              |                    |  | Wood appears in the spoon |
| 47                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 | SC            |              |                    |  |                           |
| 48                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 49                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 50                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 51                                            |                 | S11               | 50'-52'      | 18,13          | 31                            | 12"                     |                        | NA                 | NA      | NA                                  | Dark Brown Clayey SAND, trace Silt, trace M-F Gravel(moist)     |               |              |                    |  |                           |
| 52                                            |                 |                   |              | 18,16          |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 53                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 54                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 55                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 56                                            |                 | S12               | 55'-57'      | 14,18          | 36                            | 12"                     |                        | NA                 | NA      | NA                                  | Dark Brown Clayey SAND, trace Silt, trace Rock fragments(moist) |               |              | SC                 |  |                           |
| 57                                            |                 |                   |              | 18,23          |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 58                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     | EOB @ 57'                                                       |               |              |                    |  |                           |
| 59                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |
| 60                                            |                 |                   |              |                |                               |                         |                        |                    |         |                                     |                                                                 |               |              |                    |  |                           |

NOTES:

1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.

2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.

3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)



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656 Georges Road, North Brunswick, NJ 08902

| GRANULAR SOILS |              | COHESIVE SOILS |           |
|----------------|--------------|----------------|-----------|
| 0-4            | VERY LOOSE   | <2             | VERY SOFT |
| 4-10           | LOOSE        | 2-4            | SOFT      |
| 10-30          | MEDIUM DENSE | 4-8            | M. STIFF  |
| 30-50          | DENSE        | 8-15           | STIFF     |
| >50            | VERY DENSE   | 15-30          | V. STIFF  |
|                |              | >30            | HARD      |

BORING LOG

SH. 1 OF 3

Sketch( With North Aerrow) SINATRA PARK

BORING NO. DB-4

BORING STATION: OFFSET:

PROJECT NO: 10081COORDINATES:

G. SURF. EL. (FT) 10.20NORTH:

DATUM EAST:

FINAL BORING DEPTH (FT)-66'.3"

SAMPLER: MANUALBORING CO: WARREN GEORGE, INC

SAMPLER HAMMER: MANUALFOREMAN: RENOLDS,WILLIAMS

CASING SIZE:4"ENGINEER:RUMIT PANDYA

CASING HAMMER:MANUALDATE START: 08/31/2010

ROCK CORE:NXDATE END : 09/01/2010

GROUND WATER READINGS

DATE

TIME

DEPTH (FT)

CASING

STABILIZATION TIME

8/31/2010

7

Initial reading

9/1/2010

7

Initial reading

| DEPTH (FT) | CORING | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE | SOIL PEN. / REC.(IN / IN)<br>ROCK PEN. / REC.(FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS                 | STRATA SYMBOL | STRATIGRAPHY | NOTES                                  |
|------------|--------|-------------------|--------------|----------------|---------|------------------------------------------------------|--------------------|---------|-------------|---------------------------------------------------------------------|---------------|--------------|----------------------------------------|
| 1          |        | S1                | 0'-2'        | 15,12          | 28      | 12"                                                  | NA                 | NA      | NA          | Dark Brown M-F SAND, some C-M Gravel, trace Concrete fragments(dry) | FILL          |              |                                        |
| 2          |        |                   |              | 16,18          |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 3          |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 4          |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 5          |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 6          |        | S2                | 5'-7'        | 7,2            | 4       | 8"                                                   | NA                 | NA      | NA          | Dark Brown C-F SAND,little M-F Gravel, trace Silt(wet)              | FILL          |              |                                        |
| 7          |        |                   |              | 2,4            |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 8          |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 9          |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 10         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 11         |        | S3                | 10'-12'      | 12,12          | 15      | 6"                                                   | NA                 | NA      | NA          | Dark Brown Silty GRAVEL(wet)                                        | FILL          |              | Wood Pieces at the bottom of the spoon |
| 12         |        |                   |              | 3,1            |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 13         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 14         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 15         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 16         |        | S4                | 15'-17'      | WR,WR          | WR      | 4"                                                   | NA                 | NA      | NA          | Dark Gray Silty CLAY,little C-M Silty GRAVEL(Wet)                   | OL-GM         |              |                                        |
| 17         |        |                   |              | 3,1            |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 18         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 19         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 20         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 21         |        | S5                | 20'-22'      | WR,WR          | WR      | 6"                                                   | NA                 | NA      | NA          | Dark Gray Silty CLAY, trace M-F Gravel(wet)                         | OL            |              |                                        |
| 22         |        |                   |              | WR,3           |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 23         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 24         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 25         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 26         |        | S6                | 25'-27'      | 10,4           | 10      | 3"                                                   | NA                 | NA      | NA          | Dark Gray Clayey GRAVEL, trace Silt(wet)                            | GC            |              |                                        |
| 27         |        |                   |              | 6,5            |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 28         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 29         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |
| 30         |        |                   |              |                |         |                                                      |                    |         |             |                                                                     |               |              |                                        |

NOTES:

1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.

2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.

3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)

DS

Distinct Engineering Solution, Inc.

656 Georges Road, North Brunswick, NJ 08902

| GRANULAR SOILS |              | COHESIVE SOILS |           |
|----------------|--------------|----------------|-----------|
| 0-4            | VERY LOOSE   | <2             | VERY SOFT |
| 4-10           | LOOSE        | 2-4            | SOFT      |
| 10-30          | MEDIUM DENSE | 4-8            | M. STIFF  |
| 30-50          | DENSE        | 8-15           | STIFF     |
| >50            | VERY DENSE   | 15-30          | V. STIFF  |
|                |              | >30            | HARD      |

BORING NO.DB-4

| BORING LOG                                                                                                                                                                                                                                             |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    | SH. 2 OF 3 |  |              |  |  |  |  |  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|-------------------|--------------|----------------|-------------------------------|------------------------------------------------------|--------------------|---------|---------------------------------------------------------------------|-----------------------------------------------------|---------------|-------------------------|--------|--------------------|------------|--|--------------|--|--|--|--|--|--|
| Sketch( With North Arrow) <b>SINATRA PARK</b>                                                                                                                                                                                                          |                               |                   |              |                |                               |                                                      |                    |         |                                                                     | BORING NO. <b>DB-4</b>                              |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                        |                               |                   |              |                |                               |                                                      |                    |         |                                                                     | BORING STATION:                                     |               |                         |        |                    |            |  | OFFSET:      |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                        |                               |                   |              |                |                               |                                                      |                    |         |                                                                     | PROJECT NO: <b>10081</b>                            |               |                         |        |                    |            |  | COORDINATES: |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                        |                               |                   |              |                |                               |                                                      |                    |         |                                                                     | G. SURF. EL. (FT) <b>10.20</b>                      |               |                         |        |                    |            |  | NORTH:       |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                        |                               |                   |              |                |                               |                                                      |                    |         |                                                                     | DATUM                                               |               |                         |        |                    |            |  | EAST:        |  |  |  |  |  |  |
|                                                                                                                                                                                                                                                        |                               |                   |              |                |                               |                                                      |                    |         |                                                                     | FINAL BORING DEPTH (FT)- <b>66'.3"</b>              |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| SAMPLER: MANUAL                                                                                                                                                                                                                                        |                               |                   |              |                | BORING CO: WARREN GEORGE, INC |                                                      |                    |         |                                                                     | GROUND WATER READINGS                               |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| SAMPLER HAMMER: MANUAL                                                                                                                                                                                                                                 |                               |                   |              |                | FOREMAN: RENOLDS,WILLIAMS     |                                                      |                    |         |                                                                     | DATE                                                | TIME          | DEPTH (FT)              | CASING | STABILIZATION TIME |            |  |              |  |  |  |  |  |  |
| CASING SIZE:4"                                                                                                                                                                                                                                         |                               |                   |              |                | ENGINEER:RUMIT PANDYA         |                                                      |                    |         |                                                                     | 8/31/2010                                           |               | 7                       |        | Initial reading    |            |  |              |  |  |  |  |  |  |
| CASING HAMMER:MANUAL                                                                                                                                                                                                                                   |                               |                   |              |                | DATE START: 08/31/2010        |                                                      |                    |         |                                                                     | 9/1/2010                                            |               | 7                       |        | Initial reading    |            |  |              |  |  |  |  |  |  |
| ROCK CORE:NX                                                                                                                                                                                                                                           |                               |                   |              |                | DATE END : 09/01/2010         |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| DEPTH (FT)                                                                                                                                                                                                                                             | CASING(BPF) / CORING (MIN/FT) | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE                       | SOIL PEN. / REC.(IN / IN)<br>ROCK PEN. / REC.(FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING                                                         | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS | STRATA SYMBOL | STRATIGRAPHY            | NOTES  |                    |            |  |              |  |  |  |  |  |  |
| 31                                                                                                                                                                                                                                                     | S7                            | 30'-32'           | 11, 16       | 22             | 6"                            | NA                                                   | NA                 | NA      | Dark Gray C-M Silty SAND, little C-M Silty GRAVEL, trace Clay (wet) | SM-GM                                               |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 32                                                                                                                                                                                                                                                     |                               |                   | 6, 20        |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 33                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 34                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               | Lost mud @34 to 35 feet |        |                    |            |  |              |  |  |  |  |  |  |
| 35                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 36                                                                                                                                                                                                                                                     | S8                            | 35'-37'           | WR,WR        | WR             | 4"                            | NA                                                   | NA                 | NA      | Dark Gray Silty CLAY, trace shell fragments(wet)                    | OL                                                  |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 37                                                                                                                                                                                                                                                     |                               |                   | WR,WR        |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 38                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 39                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 40                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 41                                                                                                                                                                                                                                                     | S9                            | 40'-42'           | 2,4          | 12             | 24"                           | NA                                                   | NA                 | NA      | Dark Gray M-F Silty SAND, trace Clay(wet)                           | SM                                                  |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 42                                                                                                                                                                                                                                                     |                               |                   | 8,9          |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 43                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 44                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 45                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 46                                                                                                                                                                                                                                                     | S10                           | 45'-47'           | 8,26         | 46             | 24"                           | NA                                                   | NA                 | NA      | Top 4"- Dark Gray CLAY, trace Silt(moist)                           | OH                                                  |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 47                                                                                                                                                                                                                                                     |                               |                   | 20,13        |                |                               |                                                      |                    |         | Bottom 4"-Dark Brown M-F SAND, trace Silt, trace fine Gravel(wet)   | SP                                                  |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 48                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 49                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 50                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 51                                                                                                                                                                                                                                                     | S11                           | 50'-52'           | 8,8          | 20             | 24"                           | NA                                                   | NA                 | NA      | Brown to reddish Brown Silty SAND, trace Clay(moist)                | SM                                                  |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 52                                                                                                                                                                                                                                                     |                               |                   | 12,16        |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 53                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 54                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 55                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 56                                                                                                                                                                                                                                                     | S12                           | 55'-57'           | 12,10        | 26             | 20"                           | NA                                                   | NA                 | NA      | Reddish Brown Silty SAND, trace Clay(moist)                         | SM                                                  |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 57                                                                                                                                                                                                                                                     |                               |                   | 16,17        |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 58                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 59                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 60                                                                                                                                                                                                                                                     |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| NOTES:                                                                                                                                                                                                                                                 |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.                                                  |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.                                                                                                                                      |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM) |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| <div><div></div><div><div>Distinct Engineering, Solution, Inc.</div><div>656 Georges Road, North Brunswick, NJ 08902</div></div></div>                               |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |
| <div><div>BORING NO.DB-4</div></div>                                                                                                                                                                                                                   |                               |                   |              |                |                               |                                                      |                    |         |                                                                     |                                                     |               |                         |        |                    |            |  |              |  |  |  |  |  |  |

| BORING LOG                                    |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              | SH. 3 OF 3                                 |                    |              |  |  |  |  |
|-----------------------------------------------|------------------------------------|-------------------|--------------|----------------|-------------------------------|------------------------------------------------------|--------------------|---------|-------------|-----------------------------------------------------------|---------------|--------------|--------------------------------------------|--------------------|--------------|--|--|--|--|
| Sketch( With North Arrow) <b>SINATRA PARK</b> |                                    |                   |              |                |                               |                                                      |                    |         |             | BORING NO. <b>DB-4</b>                                    |               |              |                                            |                    |              |  |  |  |  |
|                                               |                                    |                   |              |                |                               |                                                      |                    |         |             | BORING STATION:                                           |               |              |                                            |                    | OFFSET:      |  |  |  |  |
|                                               |                                    |                   |              |                |                               |                                                      |                    |         |             | PROJECT NO: <b>10081</b>                                  |               |              |                                            |                    | COORDINATES: |  |  |  |  |
|                                               |                                    |                   |              |                |                               |                                                      |                    |         |             | G. SURF. EL. (FT) <b>10.20</b>                            |               |              |                                            |                    | NORTH:       |  |  |  |  |
|                                               |                                    |                   |              |                |                               |                                                      |                    |         |             | DATUM                                                     |               |              |                                            |                    | EAST:        |  |  |  |  |
|                                               |                                    |                   |              |                |                               |                                                      |                    |         |             | FINAL BORING DEPTH (FT)- <b>66'.3"</b>                    |               |              |                                            |                    |              |  |  |  |  |
| SAMPLER: MANUAL                               |                                    |                   |              |                | BORING CO: WARREN GEORGE, INC |                                                      |                    |         |             | GROUND WATER READINGS                                     |               |              |                                            |                    |              |  |  |  |  |
| SAMPLER HAMMER: MANUAL                        |                                    |                   |              |                | FOREMAN: RENOLDS,WILLIAMS     |                                                      |                    |         |             | DATE                                                      | TIME          | DEPTH (FT)   | CASING                                     | STABILIZATION TIME |              |  |  |  |  |
| CASING SIZE:4"                                |                                    |                   |              |                | ENGINEER:RUMIT PANDYA         |                                                      |                    |         |             | 8/31/2010                                                 |               | 7            |                                            | Initial reading    |              |  |  |  |  |
| CASING HAMMER:MANUAL                          |                                    |                   |              |                | DATE START: 08/31/2010        |                                                      |                    |         |             | 9/1/2010                                                  |               | 7            |                                            | Initial reading    |              |  |  |  |  |
| ROCK CORE:NX                                  |                                    |                   |              |                | DATE END : 09/01/2010         |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| DEPTH (FT)                                    | CORING<br>CASING(BPF)/<br>(MIN/FT) | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS / 6 INCH | N VALUE                       | SOIL PEN. / REC.(IN / IN)<br>ROCK PEN. / REC.(FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS       | STRATA SYMBOL | STRATIGRAPHY | NOTES                                      |                    |              |  |  |  |  |
| 61                                            |                                    | S13               | 60' -        | 4">100         | 100                           | 2"                                                   | NA                 | NA      | NA          | Brown to gray sndy GRAVEL, trace split , trace clay (wet) | GW            |              |                                            |                    |              |  |  |  |  |
| 62                                            |                                    |                   | 60.16'       |                |                               |                                                      |                    |         |             |                                                           |               |              | Roller Bit and split spoon refusal @61'.8" |                    |              |  |  |  |  |
| 63                                            |                                    | R-1               | 61'.8" -     | NA             | NA                            | 4"                                                   | NA                 | NA      | NA          | Decomposed SERPENTINATE (Rec.=6%, RQD=0%)                 |               |              | Time to core 5 ft was 40min.               |                    |              |  |  |  |  |
| 64                                            |                                    |                   | 66'.8"       |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 65                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 66                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 67                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 68                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 69                                            |                                    |                   |              |                |                               |                                                      |                    |         |             | EOB at 68.5'                                              |               |              |                                            |                    |              |  |  |  |  |
| 70                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 71                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 72                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 73                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 74                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 75                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 76                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 77                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 78                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 79                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 80                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 81                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 82                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 83                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 84                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 85                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 86                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 87                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 88                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 89                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |
| 90                                            |                                    |                   |              |                |                               |                                                      |                    |         |             |                                                           |               |              |                                            |                    |              |  |  |  |  |

NOTES:

1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.

2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.

3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)

| GRANULAR SOILS |              | COHESIVE SOILS |           |
|----------------|--------------|----------------|-----------|
| 0-4            | VERY LOOSE   | <2             | VERY SOFT |
| 4-10           | LOOSE        | 2-4            | SOFT      |
| 10-30          | MEDIUM DENSE | 4-8            | M. STIFF  |
| 30-50          | DENSE        | 8-15           | STIFF     |
| >50            | VERY DENSE   | 15-30          | V. STIFF  |
|                |              | >30            | HARD      |



Distinct Engineering, Solution, Inc.  
656 Georges Road, North Brunswick, NJ 08902

BORING NO.DB-4

| BORING LOG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              | SH. 1 OF 2         |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|----------------|-------------------|--------------|-------------------------------|---------|-----------------------------------------------|--------------------|---------|------------------------|--------------------------------------------------------------------------------------------------|---------------|--------------|--------------------|--|----------------|--|----------------|--|-----|------------|----|-----------|------|-------|-----|------|-------|--------------|-----|----------|-------|-------|------|-------|-----|------------|-------|----------|--|--|-----|------|
| Sketch( With North Arrow) CASTLE POINT                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |                |                   |              |                               |         |                                               |                    |         | BORING NO. DB-5        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      |                |                   |              |                               |         |                                               |                    |         | BORING STATION:        |                                                                                                  |               |              | OFFSET:            |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      |                |                   |              |                               |         |                                               |                    |         | PROJECT NO: 10081      |                                                                                                  |               |              | COORDINATES:       |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      |                |                   |              |                               |         |                                               |                    |         | G. SURF. EL. (FT) 8.09 |                                                                                                  |               |              | NORTH:             |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      |                |                   |              |                               |         |                                               |                    |         | DATUM                  |                                                                                                  |               |              | EAST:              |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| FINAL BORING DEPTH (FT)-57                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      |                |                   |              | BORING CO: WARREN GEORGE, INC |         |                                               |                    |         | GROUND WATER READINGS  |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| SAMPLER HAMMER: MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |                |                   |              | FOREMAN: RENOLDS,WILLIAMS     |         |                                               |                    |         | DATE                   | TIME                                                                                             | DEPTH (FT)    | CASING       | STABILIZATION TIME |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING SIZE:4"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                |                   |              | ENGINEER:RUMIT PANDYA         |         |                                               |                    |         | 9/1/2010               |                                                                                                  | 7             |              | Initial reading    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| CASING HAMMER:MANUAL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                      |                |                   |              | DATE START: 09/01/2010        |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| ROCK CORE:NX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                      |                |                   |              | DATE END : 09/01/2010         |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| DEPTH (FT)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | CASING(BPF) (MIN/FT) | CORING         | SAMPLE / CORE NO. | SAMPLE DEPTH | BLOWS/ 6 INCH                 | N VALUE | SOIL PEN./ REC.(IN/IN) ROCK PEN./ REC.(FT/FT) | TOTAL CORE REC (%) | RQD (%) | PID READING            | SAMPLE DESCRIPTION<br>BURMISTER DESCRIPTION or USCS                                              | STRATA SYMBOL | STRATIGRAPHY | NOTES              |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                | S1                | 0'-2'        | 12,16                         | 35      | 12"                                           | NA                 | NA      | NA                     | Brown to Dark Brown M-F SAND, some C-F Gravel, trace Concrete and Bricks fragments(dry) [FILL]   | SP-GP         |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                |                   |              | 29,22                         |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 6                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                | S2                | 5'-7'        | 11,7                          | 35      | 12"                                           | NA                 | NA      | NA                     | Dark Brown C-M SAND, some C-F Gravel, trace Bricks fragments(wet) [FILL]                         | SP-GP         |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                |                   |              | 28,17                         |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 9                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 11                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                | S3                | 10'-12'      | 50,34                         | 53      | 12"                                           | NA                 | NA      | NA                     | Dark Brown C-M SAND, little C-M Gravel, trace mica(wet)                                          | SP-GP         |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              | 19,18                         |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 14                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 16                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                | S4                | 15'-17'      | 16,16                         | 24      | 12"                                           | NA                 | NA      | NA                     | Dark Brown C-M SAND, little C-M Gravel, trace mica(wet)                                          | SP-GP         |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              | 8,41                          |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 18                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 19                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 21                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                | S5                | 20'-22'      | 4,3                           | 4       | 3"                                            | NA                 | NA      | NA                     | Dark Gray C-M SAND, trace Silt, trace M-F Gravel(Wet)                                            | SP            |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              | 1,2                           |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 23                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 24                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 25                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 26                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                | S6                | 25'-27'      | 25,17                         | 32      | 10"                                           | NA                 | NA      | NA                     | Brown to Green C-M Silty GRAVEL, trace Clay, trace rock fragments(wet) [Decomposed Serpentinite] |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 27                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              | 15,15                         |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 28                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 29                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| NOTES:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.                                                                                                                                                                                                                                                                                                         |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.                                                                                                                                                                                                                                                                                                                                                                                             |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)                                                                                                                                                                                                                                                        |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| <div><div><div><div>E</div><div>S</div><div>D</div></div></div><div>Distinct Engineering, Solution, Inc.</div><div>656 Georges Road, North Brunswick, NJ 08902</div></div>                                                                                                                                                                                                                                                                                                                                    |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| <table><tr><th colspan="2">GRANULAR SOILS</th><th colspan="2">COHESIVE SOILS</th></tr><tr><td>0-4</td><td>VERY LOOSE</td><td>&lt;2</td><td>VERY SOFT</td></tr><tr><td>4-10</td><td>LOOSE</td><td>2-4</td><td>SOFT</td></tr><tr><td>10-30</td><td>MEDIUM DENSE</td><td>4-8</td><td>M. STIFF</td></tr><tr><td>30-50</td><td>DENSE</td><td>8-15</td><td>STIFF</td></tr><tr><td>&gt;50</td><td>VERY DENSE</td><td>15-30</td><td>V. STIFF</td></tr><tr><td></td><td></td><td>&gt;30</td><td>HARD</td></tr></table> |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  | GRANULAR SOILS |  | COHESIVE SOILS |  | 0-4 | VERY LOOSE | <2 | VERY SOFT | 4-10 | LOOSE | 2-4 | SOFT | 10-30 | MEDIUM DENSE | 4-8 | M. STIFF | 30-50 | DENSE | 8-15 | STIFF | >50 | VERY DENSE | 15-30 | V. STIFF |  |  | >30 | HARD |
| GRANULAR SOILS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      | COHESIVE SOILS |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 0-4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | VERY LOOSE           | <2             | VERY SOFT         |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 4-10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | LOOSE                | 2-4            | SOFT              |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 10-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | MEDIUM DENSE         | 4-8            | M. STIFF          |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| 30-50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | DENSE                | 8-15           | STIFF             |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| >50                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | VERY DENSE           | 15-30          | V. STIFF          |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                      | >30            | HARD              |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |
| BORING NO.DB-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                      |                |                   |              |                               |         |                                               |                    |         |                        |                                                                                                  |               |              |                    |  |                |  |                |  |     |            |    |           |      |       |     |      |       |              |     |          |       |       |      |       |     |            |       |          |  |  |     |      |

## SH. 2 OF 2

BORING NO. DB-5

BORING STATION: \_\_\_\_\_ OFFSET: \_\_\_\_\_

PROJECT NO: 10081

COORDINATES:

|                   |      |
|-------------------|------|
| G. SURF. EL. (FT) | 8.09 |
|-------------------|------|

NORTH:

DATUM

EAST:

FINAL BORING DEPTH (FT)-42'

SAMPLER: MANUAL

BORING CO: WARREN GEORGE, INC

GROUND WATER READINGS

# SAMPLER HAMMER: MANUAL

FOREMAN: RENOLDS, WILLIAMS

DATE \_\_\_\_\_

TIME

DEPTH (FT)

## CASING

STABILIZATION TIME

CASING SIZE:4"

ENGINEER:RUMIT PANDYA

9/1/2010

7

Initial reading

# CASING HAMMER:MANUAL

DATE START: 09/01/2010

ROCK CORE:NX

DATE END : 09/01/2010

[illegible]

**NOTES:**

1) Water level readings have been made at times and under conditions stated. Fluctuations of groundwater levels may occur due to other factors than those present at the time measurements were made.

2) Stratification lines represent approximate boundaries between soil and rock types, transitions may be gradual.

3) PID Readings are referenced to a benzene standard measured in the head space of sealed sample jars using an organic vapor meter equipped with a photoionization detector (PID) and a 10.6 eV lamp. Results are in parts per million by volume (PPM)

| GRANULAR SOILS |              | COHESIVE SOILS |           |
|----------------|--------------|----------------|-----------|
| 0-4            | VERY LOOSE   | <2             | VERY SOFT |
| 4-10           | LOOSE        | 2-4            | SOFT      |
| 10-30          | MEDIUM DENSE | 4-8            | M. STIFF  |
| 30-50          | DENSE        | 8-15           | STIFF     |
| >50            | VERY DENSE   | 15-30          | V. STIFF  |
|                |              | >30            | HARD      |



*Distinct Engineering, Solution, Inc.*  
656 Georges Road, North Brunswick, NJ 08902

**BORING NO.DB-4**

## Test Pit Logs



## Distinct Engineering Solutions, Inc

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Fax-732-398-1699

|               |                            |              |                     |
|---------------|----------------------------|--------------|---------------------|
| PROJECT NAME: | Hoboken Waterfront Walkway | Test Pit No. | TP-1                |
| LOCATION:     | Hoboken, NJ                | WEATHER:     | Rain                |
| PROJECT NO.   | 10081                      | CLIENT:      | Boswel Engineering  |
| STARTED:      | August 25, 2010            | CONTRACTOR:  | Warren George, Inc. |
| COMPLETED:    | August 25, 2010            | OPERATOR:    | Jim Wilkinson       |
| INSPECTOR:    | Giorgi Khardzeishvili      | ELEVATION:   | 11.0                |

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                                 | SAMPLE<br>NUMBER | REMARKS                                                                                         |
|------------------|-------------|-----------------------------------------------------------------------------|------------------|-------------------------------------------------------------------------------------------------|
| 1                | GW          | Gray C-F GRAVEL, little C-F Sand [FILL]                                     |                  | Geofabric beneath the Gravel at 1.0 ft                                                          |
| 2                |             | Dark brown to black C-F SAND, some C-F Gravel, trace silt [FILL]            |                  | Fragments of concrete, asphalt, and brick were observed 2' to 4' below ground surface           |
| 3                | SP          |                                                                             |                  |                                                                                                 |
| 4                |             | Brown to dark brown C-F SAND, little Clay and Silt, trace C-F Gravel [FILL] |                  | Fragments of steel rebar, wood, concrete, and brick were observed 4' to 8' below ground surface |
| 5                |             |                                                                             |                  |                                                                                                 |
| 6                | SP          |                                                                             |                  |                                                                                                 |
| 7                |             |                                                                             |                  |                                                                                                 |
| 8                |             |                                                                             |                  |                                                                                                 |
| 9                |             | End of Excavation @ 8' bgs                                                  |                  |                                                                                                 |
| 10               |             |                                                                             |                  |                                                                                                 |



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|               |                            |              |                     |
|---------------|----------------------------|--------------|---------------------|
| PROJECT NAME: | Hoboken Waterfront Walkway | Test Pit No. | TP-2                |
| LOCATION:     | Hoboken, NJ                | WEATHER:     | Rain                |
| PROJECT NO.   | 10081                      | CLIENT:      | Boswel Engineering  |
| STARTED:      | August 25, 2010            | CONTRACTOR:  | Warren George, Inc. |
| COMPLETED:    | August 25, 2010            | OPERATOR:    | Jim Wilkinson       |
| INSPECTOR:    | Giorgi Khardzeishvili      | ELEVATION:   | 10.8'               |

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                                        | SAMPLE<br>NUMBER | REMARKS                                                                                     |
|------------------|-------------|------------------------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------------------|
| 1                | GW          | Gray C-F GRAVEL, little C-F Sand [FILL]                                            |                  | Geofabric beneath the Gravel at 1.0 ft                                                      |
| 2                |             | Dark brown to brown C-F SAND, some C-F Gravel, trace silt [FILL]                   |                  | Fragments of concrete, asphalt, and brick were observed 2' to 4' below ground surface       |
| 3                |             |                                                                                    |                  | HDPE Perforated 12" diameter drainage pipe was observed 2' to 3' below ground surface.      |
| 4                |             |                                                                                    |                  | Steel rebars 3.5' bgs                                                                       |
| 5                | SP          | Dark brown to dark gray C-F SAND, little Clay, trace Silt, trace C-F Gravel [FILL] |                  | Fragments of wood, concrete, asphalt, and brick were observed 3' to 8' below ground surface |
| 6                |             |                                                                                    |                  |                                                                                             |
| 7                |             |                                                                                    |                  |                                                                                             |
| 8                |             |                                                                                    |                  | Groundwater seepage was observed 7' bgs                                                     |
| 9                |             | End of Excavation @ 8' bgs                                                         |                  |                                                                                             |
| 10               |             |                                                                                    |                  |                                                                                             |



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|               |                            |              |                     |
|---------------|----------------------------|--------------|---------------------|
| PROJECT NAME: | Hoboken Waterfront Walkway | Test Pit No. | TP-3                |
| LOCATION:     | Hoboken, NJ                | WEATHER:     | Sunny               |
| PROJECT NO.   | 10081                      | CLIENT:      | Boswel Engineering  |
| STARTED:      | August 30, 2010            | CONTRACTOR:  | Warren George, Inc. |
| COMPLETED:    | August 30, 2010            | OPERATOR:    | Jim Wilkinson       |
| INSPECTOR:    | Bhushan Pathare            | ELEVATION:   | 10.7'               |

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                        | SAMPLE<br>NUMBER | REMARKS                                                                                                      |
|------------------|-------------|--------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------|
| 1                | GW          | Gray C-F GRAVEL, little C-F Sand [FILL]                            |                  | Geofabric beneath the Gravel at 1.0 ft                                                                       |
| 2                | SP          | Dark brown to brown M-F SAND, little C-F Gravel, trace silt [FILL] |                  | Fragments of concrete were observed 2' to 4' below ground surface.<br>Steel rebars 2.5' bgs.                 |
| 3                |             |                                                                    |                  | HDPE Perforated 12" diameter drainage pipe was observed 2' to 3' below ground surface.                       |
| 4                |             | Asphalt/Concrete (refusal)                                         |                  | It was impossible to excavate below 4' because of the possible presence of the asphalt covered concrete slab |
| 5                |             | End of Excavation @ 8' bgs                                         |                  |                                                                                                              |
| 6                |             |                                                                    |                  |                                                                                                              |
| 7                |             |                                                                    |                  |                                                                                                              |
| 8                |             |                                                                    |                  |                                                                                                              |
| 9                |             |                                                                    |                  |                                                                                                              |
| 10               |             |                                                                    |                  |                                                                                                              |



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|               |                            |              |                     |
|---------------|----------------------------|--------------|---------------------|
| PROJECT NAME: | Hoboken Waterfront Walkway | Test Pit No. | TP-4                |
| LOCATION:     | Hoboken, NJ                | WEATHER:     | Sunny               |
| PROJECT NO.   | 10081                      | CLIENT:      | Boswel Engineering  |
| STARTED:      | August 30, 2010            | CONTRACTOR:  | Warren George, Inc. |
| COMPLETED:    | August 30, 2010            | OPERATOR:    | Jim Wilkinson       |
| INSPECTOR:    | Bhushan Pathare            | ELEVATION:   | 10.7'               |

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                                                | SAMPLE<br>NUMBER | REMARKS                                                                                |
|------------------|-------------|--------------------------------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------|
| 1                | GW          | Gray C-F GRAVEL, little C-F Sand [FILL]                                                    |                  | Geofabric beneath the Gravel at 1.0 ft                                                 |
| 2                |             | Dark brown to brown M-F SAND, little C-F Gravel, trace silt, trace Rock fragments [FILL]   |                  | Fragments of rock were observed 2' to 4' below ground surface.                         |
| 3                |             |                                                                                            |                  | HDPE Perforated 12" diameter drainage pipe was observed 2' to 3' below ground surface. |
| 4                |             | Dark gray M-F SAND, little F Gravel, trace silt, trace brick and concrete fragments [FILL] |                  | Large pieces of concrete 4' bgs                                                        |
| 5                |             |                                                                                            |                  | Fragments of concrete and brick were observed 4' to 8' below ground surface.           |
| 6                |             |                                                                                            |                  |                                                                                        |
| 7                |             |                                                                                            |                  |                                                                                        |
| 8                |             |                                                                                            |                  | Groundwater seepage was observed 8.5' bgs                                              |
| 9                |             |                                                                                            |                  | Fragments of asphalt and brick were observed 8' to 9' bgs.                             |
| 10               |             | End of Excavation @ 9' bgs                                                                 |                  | Hole began collapsing when excavation depth reached 9' bgs.                            |



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|---------------|----------------------------|--------------|---------------------|
| PROJECT NAME: | Hoboken Waterfront Walkway | Test Pit No. | TP-5                |
| LOCATION:     | Hoboken, NJ                | WEATHER:     | Sunny               |
| PROJECT NO.   | 10081                      | CLIENT:      | Boswel Engineering  |
| STARTED:      | August 30, 2010            | CONTRACTOR:  | Warren George, Inc. |
| COMPLETED:    | August 30, 2010            | OPERATOR:    | Jim Wilkinson       |
| INSPECTOR:    | Bhushan Pathare            | ELEVATION:   | 10.5'               |

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                        | SAMPLE<br>NUMBER | REMARKS                                                                        |
|------------------|-------------|--------------------------------------------------------------------|------------------|--------------------------------------------------------------------------------|
| 1                | SP          | Brown M-F SAND, little C-F Gravel, trace Silt [FILL]               |                  | Geofabric beneath the Gravel at 1.0 ft                                         |
| 2                |             |                                                                    |                  |                                                                                |
| 3                |             |                                                                    |                  |                                                                                |
| 4                |             |                                                                    |                  |                                                                                |
| 5                |             | Dark gray to brown C-F SAND, some C-F Gravel, trace silt [FILL]    |                  | Fragments of brick and concrete were observed 4' to 8.5' below ground surface. |
| 6                |             |                                                                    |                  |                                                                                |
| 7                |             | Dark brown C-F SAND, some Silt, trace brick, trace concrete [FILL] |                  |                                                                                |
| 8                |             |                                                                    |                  | Groundwater table at 7' bgs                                                    |
| 9                |             | End of Excavation @ 8.5' bgs                                       |                  |                                                                                |
| 10               |             |                                                                    |                  |                                                                                |



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|               |                            |              |                     |
|---------------|----------------------------|--------------|---------------------|
| PROJECT NAME: | Hoboken Waterfront Walkway | Test Pit No. | TP-6                |
| LOCATION:     | Hoboken, NJ                | WEATHER:     | Sunny               |
| PROJECT NO.   | 10081                      | CLIENT:      | Boswel Engineering  |
| STARTED:      | August 30, 2010            | CONTRACTOR:  | Warren George, Inc. |
| COMPLETED:    | August 30, 2010            | OPERATOR:    | Jim Wilkinson       |
| INSPECTOR:    | Bhushan Pathare            | ELEVATION:   | 10.6'               |

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                        | SAMPLE<br>NUMBER | REMARKS                                                                         |
|------------------|-------------|--------------------------------------------------------------------|------------------|---------------------------------------------------------------------------------|
| 1                | SP          | Brown M-F SAND, little C-F Gravel, trace Silt [FILL]               |                  | Geofabric beneath the Gravel at 1.0 ft                                          |
| 2                |             |                                                                    |                  |                                                                                 |
| 3                |             |                                                                    |                  |                                                                                 |
| 4                |             |                                                                    |                  |                                                                                 |
| 5                |             | Dark gray to brown C-F SAND, some C-F Gravel, trace silt [FILL]    |                  | Fragments of brick and concrete were observed 2' to 10.0' below ground surface. |
| 6                |             |                                                                    |                  |                                                                                 |
| 7                |             | Dark brown C-F SAND, some Silt, trace brick, trace concrete [FILL] |                  | Groundwater table at 7' bgs                                                     |
| 8                |             |                                                                    |                  |                                                                                 |
| 9                |             |                                                                    |                  |                                                                                 |
| 10               |             | End of Excavation @ 10.0' bgs                                      |                  | Possible wooden deck was encountered 10' bgs                                    |



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|---------------|----------------------------|--------------|---------------------|
| PROJECT NAME: | Hoboken Waterfront Walkway | Test Pit No. | TP-7                |
| LOCATION:     | Hoboken, NJ                | WEATHER:     | Rain                |
| PROJECT NO.   | 10081                      | CLIENT:      | Boswel Engineering  |
| STARTED:      | August 25, 2010            | CONTRACTOR:  | Warren George, Inc. |
| COMPLETED:    | August 25, 2010            | OPERATOR:    | Jim Wilkinson       |
| INSPECTOR:    | Giorgi Khardzeishvili      | ELEVATION:   | 8.7'                |

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                          | SAMPLE<br>NUMBER | REMARKS                                                                                |
|------------------|-------------|----------------------------------------------------------------------|------------------|----------------------------------------------------------------------------------------|
| 1                |             | Top 3": Pavers                                                       |                  | Geofabric beneath the Gravel at 1.0 ft                                                 |
|                  | SW          | Bottom 9": Gray F-M SAND, trace M-F Gravel                           |                  | Geofabric 1.0' bgs                                                                     |
|                  | SP          | Brown to dark brown M-F SAND, some C-F Gravel, trace silt.<br>[FILL] |                  | Fragments of brick, wood, and concrete were<br>observed 1' to 7' below ground surface. |
| 2                |             |                                                                      |                  |                                                                                        |
| 3                |             |                                                                      |                  |                                                                                        |
| 4                |             |                                                                      |                  |                                                                                        |
| 5                |             |                                                                      |                  |                                                                                        |
| 6                |             |                                                                      |                  |                                                                                        |
| 7                |             |                                                                      |                  | Groundwater table at 7' bgs                                                            |
| 8                | SP          | Dark brown C-M SAND, little C-M Gravel, trace silt [FILL]            |                  | Large water inflow at 7' bgs; hole was<br>collapsing                                   |
|                  |             | End of Excavation @ 8' bgs                                           |                  |                                                                                        |
| 9                |             |                                                                      |                  |                                                                                        |
| 10               |             |                                                                      |                  |                                                                                        |



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|               |                            |              |                     |
|---------------|----------------------------|--------------|---------------------|
| PROJECT NAME: | Hoboken Waterfront Walkway | Test Pit No. | TP-8                |
| LOCATION:     | Hoboken, NJ                | WEATHER:     | Rain                |
| PROJECT NO.   | 10081                      | CLIENT:      | Boswel Engineering  |
| STARTED:      | August 25, 2010            | CONTRACTOR:  | Warren George, Inc. |
| COMPLETED:    | August 25, 2010            | OPERATOR:    | Jim Wilkinson       |
| INSPECTOR:    | Giorgi Khardzeishvili      | ELEVATION:   | 8.4'                |

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                          | SAMPLE<br>NUMBER | REMARKS                                                                                  |
|------------------|-------------|----------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------|
| 1                |             | Top 3": Pavers                                                       |                  | Geofabric beneath the Gravel at 1.0 ft                                                   |
|                  | SW          | Bottom 9": Gray F-M SAND, trace M-F Gravel                           |                  | Geofabric 1.0' bgs                                                                       |
|                  | SP          | Brown to dark brown M-F SAND, some C-F Gravel, trace silt.<br>[FILL] |                  | Fragments of brick, wood, and concrete were<br>observed 1' to 4.5' below ground surface. |
| 2                |             |                                                                      |                  |                                                                                          |
| 3                |             |                                                                      |                  |                                                                                          |
| 4                |             |                                                                      |                  |                                                                                          |
| 5                |             | End of Excavation @ 4.5'bgs                                          |                  | Refusal on apparent concrete deck                                                        |
| 6                |             |                                                                      |                  |                                                                                          |
| 7                |             |                                                                      |                  |                                                                                          |
| 8                |             |                                                                      |                  |                                                                                          |
| 9                |             |                                                                      |                  |                                                                                          |
| 10               |             |                                                                      |                  |                                                                                          |



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**PROJECT NAME:** Hoboken Waterfront Walkway

**Test Pit No.** TP-9

**LOCATION:** Hoboken, NJ

**WEATHER:** Rain

**PROJECT NO.** 10081

**CLIENT:** Boswel Engineering

**STARTED:** August 25, 2010

**CONTRACTOR:** Warren George, Inc.

**COMPLETED:** August 25, 2010

**OPERATOR:** Jim Wilkinson

**INSPECTOR:** Giorgi Khardzeishvili

**ELEVATION:** 8.6'

| DEPTH<br>( feet) | USC<br>Sym. | DESCRIPTION                                                          | SAMPLE<br>NUMBER | REMARKS                                                                                  |
|------------------|-------------|----------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------------|
| 1                |             | Top 3": Pavers                                                       |                  | Geofabric beneath the Gravel at 1.0 ft                                                   |
|                  | SW          | Bottom 9": Gray F-M SAND, trace M-F Gravel                           |                  | Geofabric 1.0' bgs                                                                       |
|                  | SP          | Brown to dark brown M-F SAND, some C-F Gravel, trace silt.<br>[FILL] |                  | Fragments of brick, wood, and concrete were<br>observed 1' to 4.5' below ground surface. |
| 2                |             |                                                                      |                  |                                                                                          |
| 3                |             |                                                                      |                  |                                                                                          |
| 4                |             |                                                                      |                  |                                                                                          |
| 5                |             | End of Excavation @ 4.3' bgs                                         |                  | Refusal on apparent concrete deck                                                        |
| 6                |             |                                                                      |                  |                                                                                          |
| 7                |             |                                                                      |                  |                                                                                          |
| 8                |             |                                                                      |                  |                                                                                          |
| 9                |             |                                                                      |                  |                                                                                          |
| 10               |             |                                                                      |                  |                                                                                          |

**BLOCK 12 SOIL BORINGS  
2012**

|                     |                                                                                                                                                                                                                          |                   |                                           |                     |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-------------------------------------------|---------------------|
| Boring No           | <b>SB-1</b>                                                                                                                                                                                                              | <b>BORING LOG</b> |                                           | Sketch              |
| Project             | HO-458                                                                                                                                                                                                                   | Location          | Block 12<br>Hoboken, NJ                   | See attached map    |
| Drilling Contractor | EMA                                                                                                                                                                                                                      | Date              | May 14, 2012                              |                     |
| Drilling Equipment  | Geoprobe                                                                                                                                                                                                                 | Method            | Direct Push                               |                     |
| Well Install        | TWP                                                                                                                                                                                                                      | Construction      | 15' of slotted 2" diameter PVC Well Point | Personnel<br>MF, CC |
| Remarks             | Historic fill soil sample SB-1 and duplicate sample SB-11 were collected from 1.5' - 2.0' bgs at 10:00 and 10:05.<br>Groundwater sample TWP-1 and duplicate sample TWP-11 were collected at 5.0' bgs at 10:20 and 10:25. |                   |                                           |                     |

| Depth (ft) | PID | DESCRIPTION                                        | Sample No.       | REMARKS       |
|------------|-----|----------------------------------------------------|------------------|---------------|
| 1'         | 0.4 | 2" asphalt, concrete, brick, brown silt            |                  | Historic Fill |
| 2'         |     | Dark brown silt and some concrete                  | SB-1/SB-11       |               |
| 3'         |     | Dark brown clay with rocks                         |                  |               |
| 4'         |     | Brown clay and gravel                              |                  |               |
| 5'         |     | Black clay with some wood                          |                  |               |
| 6'         |     | Black silty clay with small pebbles                | TWP-1/<br>TWP-11 |               |
| 7'         |     | Black silt and clay with gravel and wood           |                  |               |
| 8'         |     | Dense clay (black)                                 |                  |               |
| 9'         |     | Clay and silt                                      |                  |               |
| 10'        |     | Very wet black clay and silt with some fine gravel |                  |               |
| 11'        |     |                                                    |                  |               |
| 12'        |     |                                                    |                  |               |
| 13'        |     |                                                    |                  |               |
| 14'        |     |                                                    |                  |               |
| 15'        |     |                                                    |                  |               |
| 16'        |     | End of Boring                                      |                  |               |
| 17'        |     |                                                    |                  |               |
| 18'        |     |                                                    |                  |               |
| 19'        |     |                                                    |                  |               |
| 20'        |     |                                                    |                  |               |

|                                |             |                   |                         |                         |
|--------------------------------|-------------|-------------------|-------------------------|-------------------------|
| Boring No                      | <b>SB-2</b> | <b>BORING LOG</b> |                         | Sketch                  |
| Project                        | HO-458      | Location          | Block 12<br>Hoboken, NJ | See attached map        |
| Drilling Contractor            | EMA         | Date              | May 14, 2012            |                         |
| Drilling Equipment             | Geoprobe    | Method            | Direct Push             |                         |
| Well Install                   | No          | Construction      | N/A                     | Personnel<br>MF, CC     |
|                                |             |                   |                         | PID (Background)<br>0.4 |
| Remarks<br>No sample collected |             |                   |                         |                         |

| Depth (ft)                                                                             | PID | DESCRIPTION                        | Sample No. | REMARKS       |
|----------------------------------------------------------------------------------------|-----|------------------------------------|------------|---------------|
| 1'                                                                                     | 0.4 | 2" asphalt, silt, gravel, clay     |            |               |
| 2'                                                                                     |     |                                    |            |               |
| 3'                                                                                     |     | Silt, gravel, clay, some brick     |            |               |
| 4'                                                                                     |     | Concrete with black clay           |            | Historic Fill |
| 5'                                                                                     |     | Black to brown clay and coal       |            |               |
| 6'                                                                                     |     | Black silty clay with coal         |            |               |
| 7'                                                                                     |     | Silty clay with ash                |            |               |
| 8'                                                                                     |     | Silty clay with brick and stone    |            |               |
| 9'  |     | Sand containing brick, stone, coal |            |               |
| 10'                                                                                    |     | Brown/green clay                   |            |               |
| 11'                                                                                    |     | End of Boring                      |            |               |
| 12'                                                                                    |     |                                    |            |               |
| 13'                                                                                    |     |                                    |            |               |
| 14'                                                                                    |     |                                    |            |               |
| 15'                                                                                    |     |                                    |            |               |
| 16'                                                                                    |     |                                    |            |               |
| 17'                                                                                    |     |                                    |            |               |
| 18'                                                                                    |     |                                    |            |               |
| 19'                                                                                    |     |                                    |            |               |
| 20'                                                                                    |     |                                    |            |               |

|                                                                                                          |             |                   |                         |                  |        |
|----------------------------------------------------------------------------------------------------------|-------------|-------------------|-------------------------|------------------|--------|
| Boring No                                                                                                | <b>SB-3</b> | <b>BORING LOG</b> |                         | Sketch           |        |
| Project                                                                                                  | HO-458      | Location          | Block 12<br>Hoboken, NJ | See attached map |        |
| Drilling Contractor                                                                                      | EMA         | Date              | May 14, 2012            |                  |        |
| Drilling Equipment                                                                                       | Geoprobe    | Method            | Direct Push             |                  |        |
| Well Install                                                                                             | No          | Construction      | N/A                     | Personnel        | MF, CC |
|                                                                                                          |             |                   |                         | PID (Background) | 0.4    |
| Remarks Poor recovery from 5'-10'; Historic fill soil sample SB-3 collected from 4' to 4.5' bgs at 11:30 |             |                   |                         |                  |        |

| Depth (ft) | PID | DESCRIPTION                   | Sample No. | REMARKS       |
|------------|-----|-------------------------------|------------|---------------|
| 1'         | 0.4 | 3" asphalt, stone subbase     |            | Historic Fill |
| 2'         |     | Ground brick                  |            |               |
| 3'         |     |                               |            |               |
| 4'         |     |                               |            |               |
| 5'         |     | Coal mixed with ash and brick | SB-3       |               |
| 6'         |     | Coal with organics            |            |               |
| 7'         |     | Brick and concrete            |            |               |
| 8'         |     | Black sandy gravel            |            |               |
| 9'         |     | Red-brown silty clay          |            |               |
| 10'        |     | Brown silty clay              |            |               |
| 11'        |     | <b>End of Boring</b>          |            |               |
| 12'        |     |                               |            |               |
| 13'        |     |                               |            |               |
| 14'        |     |                               |            |               |
| 15'        |     |                               |            |               |
| 16'        |     |                               |            |               |
| 17'        |     |                               |            |               |
| 18'        |     |                               |            |               |
| 19'        |     |                               |            |               |
| 20'        |     |                               |            |               |

|                                                                                                               |             |                   |                         |                  |
|---------------------------------------------------------------------------------------------------------------|-------------|-------------------|-------------------------|------------------|
| Boring No                                                                                                     | <b>SB-4</b> | <b>BORING LOG</b> |                         | Sketch           |
| Project                                                                                                       | HO-458      | Location          | Block 12<br>Hoboken, NJ | See attached map |
| Drilling Contractor                                                                                           | EMA         | Date              | May 14, 2012            |                  |
| Drilling Equipment                                                                                            | Geoprobe    | Method            | Direct Push             |                  |
| Well Install                                                                                                  | No          | Construction      | N/A                     | PID (Background) |
|                                                                                                               |             |                   |                         | CC               |
|                                                                                                               |             |                   |                         | 0.4              |
| Remarks<br>Boring advanced inside of former building foundation and geophysical anomaly, no sample collected. |             |                   |                         |                  |

| Depth (ft) | PID | DESCRIPTION                            | Sample No.                 | REMARKS       |
|------------|-----|----------------------------------------|----------------------------|---------------|
| 1'         | 0.4 | 2" asphalt, gravel                     |                            | Historic Fill |
| 2'         |     | Crushed brick                          |                            |               |
| 3'         |     |                                        |                            |               |
| 4'         |     |                                        |                            |               |
| 5'         |     |                                        | Mortar mixed with concrete |               |
|            |     | Gravel with sand and coal, wood, glass |                            |               |
| 6'         |     | End of Boring                          |                            |               |
| 7'         |     |                                        |                            |               |
| 8'         |     |                                        |                            |               |
| 9'         |     |                                        |                            |               |
| 10'        |     |                                        |                            |               |
| 11'        |     |                                        |                            |               |
| 12'        |     |                                        |                            |               |
| 13'        |     |                                        |                            |               |
| 14'        |     |                                        |                            |               |
| 15'        |     |                                        |                            |               |
| 16'        |     |                                        |                            |               |
| 17'        |     |                                        |                            |               |
| 18'        |     |                                        |                            |               |
| 19'        |     |                                        |                            |               |
| 20'        |     |                                        |                            |               |

|                                |             |                   |                         |                         |
|--------------------------------|-------------|-------------------|-------------------------|-------------------------|
| Boring No                      | <b>SB-5</b> | <b>BORING LOG</b> |                         | Sketch                  |
| Project                        | HO-458      | Location          | Block 12<br>Hoboken, NJ | See attached map        |
| Drilling Contractor            | EMA         | Date              | May 17, 2012            |                         |
| Drilling Equipment             | Geoprobe    | Method            | Direct Push             | Personnel<br>MF, CC     |
| Well Install                   | No          | Construction      | N/A                     | PID (Background)<br>0.5 |
| Remarks<br>No sample collected |             |                   |                         |                         |

| Depth (ft) | PID | DESCRIPTION                              | Sample No. | REMARKS       |
|------------|-----|------------------------------------------|------------|---------------|
| 1'         | 0.5 | 2" asphalt; brown quartz sand with stone |            | Historic Fill |
| 2'         |     |                                          |            |               |
| 3'         |     | Brown quartz sand with stone, some brick |            |               |
| 4'         |     | Brown clay with denatured concrete       |            |               |
| 5'         |     |                                          |            |               |
| 6'         |     | Dark brown gravel and wood               |            |               |
| 7'         |     |                                          |            |               |
| 8'         |     | Dark brown clay                          |            |               |
| 9'         |     |                                          |            |               |
| 10'        |     | Gravels and organics                     |            |               |
| 11'        |     | <b>End of Boring</b>                     |            |               |
| 12'        |     |                                          |            |               |
| 13'        |     |                                          |            |               |
| 14'        |     |                                          |            |               |
| 15'        |     |                                          |            |               |
| 16'        |     |                                          |            |               |
| 17'        |     |                                          |            |               |
| 18'        |     |                                          |            |               |
| 19'        |     |                                          |            |               |
| 20'        |     |                                          |            |               |

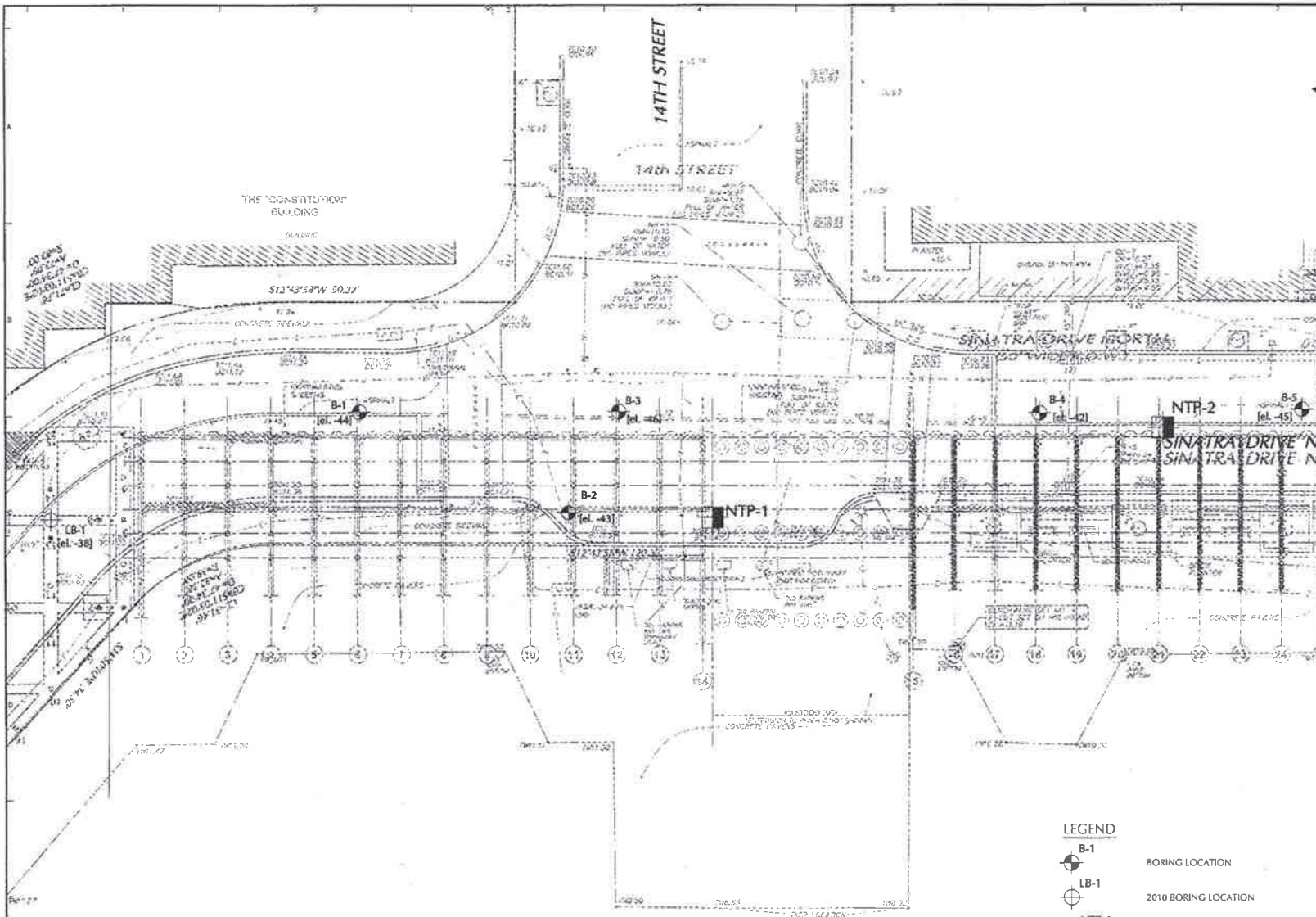
|                                                                                |             |                   |                         |                         |
|--------------------------------------------------------------------------------|-------------|-------------------|-------------------------|-------------------------|
| Boring No                                                                      | <b>SB-6</b> | <b>BORING LOG</b> |                         | Sketch                  |
| Project                                                                        | HO-458      | Location          | Block 12<br>Hoboken, NJ | See attached map        |
| Drilling Contractor                                                            | EMA         | Date              | May 17, 2012            |                         |
| Drilling Equipment                                                             | Geoprobe    | Method            | Direct Push             |                         |
| Well Install                                                                   | No          | Construction      | N/A                     | Personnel<br>MF, CC     |
|                                                                                |             |                   |                         | PID (Background)<br>0.5 |
| Remarks<br>Historic fill soil sample SB-6 collected from 9' - 9.5' bgs at 9:30 |             |                   |                         |                         |

| Depth (ft)                                                                           | PID | DESCRIPTION                                       | Sample No. | REMARKS       |
|--------------------------------------------------------------------------------------|-----|---------------------------------------------------|------------|---------------|
| 1'                                                                                   | 0.5 | 6" asphalt; light gray concrete rubble            |            | Historic Fill |
| 2'                                                                                   |     | Silty sand with fine ground coal, brick, concrete |            |               |
| 3'                                                                                   |     |                                                   |            |               |
| 4'                                                                                   |     | Tan-brown silty clay                              |            |               |
| 5'  |     | White quartz sand to brown clay                   |            |               |
| 6'                                                                                   |     | Brown silty sand with gravel, coal, and wood      |            |               |
| 7'                                                                                   |     |                                                   |            |               |
| 8'                                                                                   |     | Ground brick and gravel                           |            |               |
| 9'                                                                                   |     |                                                   |            |               |
| 10'                                                                                  |     | Brown to green silty clay with coal, glass, metal | SB-6       |               |
| 11'                                                                                  |     | <b>End of Boring</b>                              |            |               |
| 12'                                                                                  |     |                                                   |            |               |
| 13'                                                                                  |     |                                                   |            |               |
| 14'                                                                                  |     |                                                   |            |               |
| 15'                                                                                  |     |                                                   |            |               |
| 16'                                                                                  |     |                                                   |            |               |
| 17'                                                                                  |     |                                                   |            |               |
| 18'                                                                                  |     |                                                   |            |               |
| 19'                                                                                  |     |                                                   |            |               |
| 20'                                                                                  |     |                                                   |            |               |

|                     |             |                                                                                                                                                      |                         |                     |
|---------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|
| Boring No           | <b>SB-7</b> | <b>BORING LOG</b>                                                                                                                                    |                         | Sketch              |
| Project             | HO-458      | Location                                                                                                                                             | Block 12<br>Hoboken, NJ | See attached map    |
| Drilling Contractor | EMA         | Date                                                                                                                                                 | May 17, 2012            |                     |
| Drilling Equipment  | Geoprobe    | Method                                                                                                                                               | Direct Push             |                     |
| Well Install        | No          | Construction                                                                                                                                         | N/A                     | Personnel<br>MF, CC |
| PID (Background)    | 0.5         | Remarks<br>Boring advanced inside of Lot 9. Low recovery from 5' to 10'. Historic Fill Soil Sample SB-7 collected from 2.5' to 3.0' interval at 9:45 |                         |                     |

| Depth (ft) | PID | DESCRIPTION                                           | Sample No. | REMARKS       |
|------------|-----|-------------------------------------------------------|------------|---------------|
| 1'         | 0.5 | 6" grass and topsoil; brown silty clay with some coal |            | Historic Fill |
| 2'         |     |                                                       |            |               |
| 3'         |     | Brown silty clay with coal and ash and wood           | SB-7       |               |
| 4'         |     | Light brown sandy gravel with tree roots              |            |               |
| 5'         |     | Black silty clay                                      |            |               |
| 6'         |     |                                                       |            |               |
| 7'         |     | Light brown sandy clay                                |            |               |
| 8'         |     |                                                       |            |               |
| 9'         |     | Light brown clay                                      |            |               |
| 10'        |     | Loose gravel (diabase)                                |            |               |
| 11'        |     | <b>End of Boring</b>                                  |            |               |
| 12'        |     |                                                       |            |               |
| 13'        |     |                                                       |            |               |
| 14'        |     |                                                       |            |               |
| 15'        |     |                                                       |            |               |
| 16'        |     |                                                       |            |               |
| 17'        |     |                                                       |            |               |
| 18'        |     |                                                       |            |               |
| 19'        |     |                                                       |            |               |
| 20'        |     |                                                       |            |               |

**LANGAN BORING  
FRANK SINATRA DRIVE  
2013**



**LEGEND**

-  B-1 BORING LOCATION
-  LB-1 2010 BORING LOCATION
-  NTP-1 TEST PIT LOCATION
-  el. -43] ANTICIPATED ELEVATION OF TOP OF ROCK STRATA

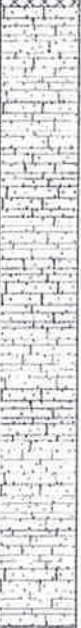


|                                                                                                                                                                |                                                                                                                        |                      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|----------------------|
| <b>LANGAN</b><br><small>1000 Old Bridge Road, Suite 200, Edison, NJ 08817<br/>         Tel: 732-720-1000 Fax: 732-720-1001<br/>         www.langan.com</small> | Project<br><b>RECONSTRUCTION OF<br/>         ROADWAY PLATFORMS<br/>         SINATRA DRIVE NORTH</b><br>CITY OF HOBOKEN | Drawing 1<br>B<br>LO |
|                                                                                                                                                                | Project<br><b>RECONSTRUCTION OF<br/>         ROADWAY PLATFORMS<br/>         SINATRA DRIVE NORTH</b><br>CITY OF HOBOKEN |                      |
|                                                                                                                                                                | Project<br><b>RECONSTRUCTION OF<br/>         ROADWAY PLATFORMS<br/>         SINATRA DRIVE NORTH</b><br>CITY OF HOBOKEN |                      |
|                                                                                                                                                                | Project<br><b>RECONSTRUCTION OF<br/>         ROADWAY PLATFORMS<br/>         SINATRA DRIVE NORTH</b><br>CITY OF HOBOKEN |                      |

|                            |  |  |  |                     |  |               |  |
|----------------------------|--|--|--|---------------------|--|---------------|--|
| Project                    |  |  |  | Project No          |  |               |  |
| Sinatra Drive North        |  |  |  | 100219304           |  |               |  |
| Location                   |  |  |  | Elevation and Datum |  |               |  |
| Hoboken, N.J.              |  |  |  | Approx. 11.43       |  |               |  |
| Drilling Company           |  |  |  | Date Started        |  | Date Finished |  |
| Warren George, Inc.        |  |  |  | 10/18/13            |  | 10/21/13      |  |
| Drilling Equipment         |  |  |  | Completion Depth    |  | Rock Depth    |  |
| B-40 Truck Mounted Rig     |  |  |  | 65 ft               |  | 55 ft         |  |
| Size and Type of Bit       |  |  |  | Number of Samples   |  | Disturbed     |  |
| 2 7/8" Tri-Cone Roller Bit |  |  |  | 11                  |  | 0             |  |
| Casing Diameter (in)       |  |  |  | Water Level (ft.)   |  | Completion    |  |
| 3" O.D. Steel              |  |  |  | First               |  | 24 HR         |  |
| Casing Hammer              |  |  |  | Drop (in)           |  |               |  |
| Donut                      |  |  |  | 225                 |  | 30            |  |
| Sampler                    |  |  |  | Drilling Foreman    |  |               |  |
| 2" Split Spoon             |  |  |  | Gill Burgess        |  |               |  |
| Sampler Hammer             |  |  |  | Inspecting Engineer |  |               |  |
| Weight (lbs)               |  |  |  | Derek J. Dorrah     |  |               |  |
| 140                        |  |  |  |                     |  |               |  |
| Drop (in)                  |  |  |  |                     |  |               |  |
| 30                         |  |  |  |                     |  |               |  |

| MATERIAL SYMBOL | Elev (ft) | Sample Description                                                  | Depth Scale | Sample Data |      |            |                      |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|-----------------|-----------|---------------------------------------------------------------------|-------------|-------------|------|------------|----------------------|--------------------|-------------------------------------------------------------------------------------|
|                 |           |                                                                     |             | Number      | Type | Recoy (in) | Penetr resist BLU/in | N-Value (Blows/ft) |                                                                                     |
|                 | +11.4     | ASPHALT (12")                                                       | 0           |             |      |            |                      | 10 20 30 40        | Start drilling at 1:15 PM on 10/18/13                                               |
|                 | +10.4     |                                                                     | 1           |             |      |            |                      |                    |                                                                                     |
|                 |           |                                                                     | 2           |             |      |            |                      |                    |                                                                                     |
|                 |           |                                                                     | 3           |             |      |            |                      |                    |                                                                                     |
|                 |           |                                                                     | 4           |             |      |            |                      |                    |                                                                                     |
|                 |           |                                                                     | 5           |             |      |            | 34                   |                    | Drill to 5'                                                                         |
|                 |           | Brown m-c SAND, some gravel, trace red brick (dry) [FILL]           | 6           | S-1         | SS   | 24         | 35                   | 71                 | Take S-1                                                                            |
|                 |           |                                                                     | 7           |             |      |            | 36                   |                    |                                                                                     |
|                 |           |                                                                     | 8           |             |      |            | 27                   |                    |                                                                                     |
|                 |           |                                                                     | 9           |             |      |            |                      |                    |                                                                                     |
|                 |           | Brown m-c SAND, some gravel/rock fragments (wet) [FILL]             | 10          | S-2         | SS   | 10         | 51                   | 100/1"             | Drill to 10'                                                                        |
|                 |           |                                                                     | 11          |             |      |            |                      |                    | Rig chattering                                                                      |
|                 |           |                                                                     | 12          |             |      |            |                      |                    | Take S-2                                                                            |
|                 |           |                                                                     | 13          |             |      |            |                      |                    | Cored through 3 1/2" of concrete and pieces of rock                                 |
|                 |           |                                                                     | 14          |             |      |            |                      |                    |                                                                                     |
|                 |           |                                                                     | 15          |             |      |            | 10                   |                    | Drill to 15'                                                                        |
|                 |           | Gray m-c SAND, some gravel, rock fragments, trace silt (wet) [FILL] | 16          | S-3         | SS   | 12         | 15                   | 42                 | Take S-3                                                                            |
|                 |           |                                                                     | 17          |             |      |            | 27                   |                    |                                                                                     |
|                 |           |                                                                     | 18          |             |      |            | 20                   |                    |                                                                                     |
|                 |           |                                                                     | 19          |             |      |            |                      |                    | Stopped drilling at 3:15 PM                                                         |
|                 |           |                                                                     | 20          |             |      |            |                      |                    | Started drilling at 9:01 AM                                                         |
|                 |           |                                                                     |             |             |      |            |                      |                    | Install 20' of casing                                                               |
|                 |           |                                                                     |             |             |      |            |                      |                    | Drill to 20'                                                                        |
|                 |           |                                                                     |             |             |      |            |                      |                    | Rig chattering                                                                      |

|                     |            |                                                                                                                          |             |             |      |            |                     |                                   |                                                                                     |    |
|---------------------|------------|--------------------------------------------------------------------------------------------------------------------------|-------------|-------------|------|------------|---------------------|-----------------------------------|-------------------------------------------------------------------------------------|----|
| Project             |            | Project No.                                                                                                              |             |             |      |            |                     |                                   |                                                                                     |    |
| Sinatra Drive North |            | 100219304                                                                                                                |             |             |      |            |                     |                                   |                                                                                     |    |
| Location            |            | Elevation and Datum                                                                                                      |             |             |      |            |                     |                                   |                                                                                     |    |
| Hoboken, N.J.       |            | Approx. 11.43                                                                                                            |             |             |      |            |                     |                                   |                                                                                     |    |
| MATERIAL SYMBOL     | Elev. (ft) | Sample Description                                                                                                       | Depth Scale | Sample Data |      |            |                     |                                   | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |    |
|                     |            |                                                                                                                          |             | Number      | Type | Recov (in) | Penetr resist BU/in | N-Value (Blows/ft)<br>10 20 30 40 |                                                                                     |    |
|                     |            | Black m-c SAND, some gravel, trace silt (wet) [FILL]                                                                     | 20          |             |      |            |                     |                                   | Take S-4                                                                            |    |
|                     |            |                                                                                                                          | 21          | S-4         | SS   | 7          | 12                  |                                   |                                                                                     | 14 |
|                     |            |                                                                                                                          | 22          |             |      |            | 10                  |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 23          |             |      |            | 4                   |                                   |                                                                                     |    |
|                     | -13.6      | GRAVEL/gray angular stone, some fine sand and silt (wet) [FILL]                                                          | 24          |             |      |            | 6                   |                                   | Install 5' of casing<br>Drill to 25'<br>Take S-5                                    |    |
|                     |            |                                                                                                                          | 25          | S-5         | SS   | 8          | 9                   |                                   |                                                                                     | 14 |
|                     |            |                                                                                                                          | 26          |             |      |            | 8                   |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 27          |             |      |            | 6                   |                                   |                                                                                     | 3  |
|                     |            | GRAVEL/gray angular stone, some fine sand and silt (wet) [FILL]                                                          | 28          |             |      |            |                     |                                   | Install 5' of casing<br>Drill to 30'<br>Take S-6                                    |    |
|                     |            |                                                                                                                          | 29          |             |      |            |                     |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 30          | S-6         | SS   | 7          | 12                  |                                   |                                                                                     | 28 |
|                     |            |                                                                                                                          | 31          |             |      |            | 18                  |                                   |                                                                                     | 10 |
|                     | -22.6      | Gray-black MUD (silt, clay) mixed with GRAVEL/gray angular stone, some sand, slight petroleum/organic smell (wet) [FILL] | 32          |             |      |            | 5                   |                                   | Install 5' of casing<br>Drill to 35'<br>Take S-7                                    |    |
|                     |            |                                                                                                                          | 33          |             |      |            |                     |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 34          |             |      |            |                     |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 35          | S-7         | SS   | 5          | 4                   |                                   |                                                                                     | 6  |
|                     |            | Gray-black MUD (silt, clay) mixed with GRAVEL/gray angular stone, trace sand, slight organic smell (wet) [FILL]          | 36          |             |      |            | 4                   |                                   | Install 5' of casing<br>Drill to 40'<br>Take S-8                                    |    |
|                     |            |                                                                                                                          | 37          |             |      |            | 4                   |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 38          |             |      |            | 2                   |                                   |                                                                                     | 7  |
|                     |            |                                                                                                                          | 39          | S-8         | SS   | 3          | 10                  |                                   |                                                                                     | 11 |
|                     |            |                                                                                                                          | 40          |             |      |            | 5                   |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 41          |             |      |            | 6                   |                                   |                                                                                     | 10 |
|                     |            |                                                                                                                          | 42          |             |      |            |                     |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 43          |             |      |            |                     |                                   |                                                                                     |    |
|                     | -33.6      |                                                                                                                          | 44          |             |      |            |                     |                                   |                                                                                     |    |
|                     |            |                                                                                                                          | 45          |             |      |            |                     |                                   |                                                                                     |    |

| Project                                                                             |            | Project No.                                                                                             |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|-------------------------------------------------------------------------------------|------------|---------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------|------------------|------------|---------------------|--------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------|-----------------------------------------------------------------------|
| Sinatra Drive North                                                                 |            | 100219304                                                                                               |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| Location                                                                            |            | Elevation and Datum                                                                                     |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| Hoboken, N.J.                                                                       |            | Approx. 11.43                                                                                           |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| MATERIAL SYMBOL                                                                     | Elev. (ft) | Sample Description                                                                                      | Depth Scale                                                                                | Sample Data       |                  |            |                     |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |                                                                                     |                                                                 |                                                                       |
|                                                                                     |            |                                                                                                         |                                                                                            | Number            | Type             | Recov (in) | Penetr resist BL/in | N-Value (Blows/ft) |                                                                                     |                                                                                     |                                                                 |                                                                       |
|    |            | Gray-black CLAY with pieces of wood, some sand, some gravel, slight petroleum/organic odor (wet) [FILL] | 45                                                                                         |                   |                  |            |                     |                    |                                                                                     |  | Install 5' of casing<br>Drill to 45'<br>Rig chatter<br>Take S-9 |                                                                       |
|                                                                                     | 46         |                                                                                                         | S-9                                                                                        | SS                | 9                | 7          | 6                   | 13                 |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 47         |                                                                                                         |                                                                                            |                   |                  | 7          | 55                  |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 48         |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 49         |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 50         |                                                                                                         | Black soft CLAY, trace sand, organic smell                                                 |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 | Could not extended casing<br>Drill to 50'<br>Rig chatter<br>Take S-10 |
|                                                                                     | 51         | S-10A                                                                                                   | SS                                                                                         | 13                |                  | 35         | 16                  | 30                 |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 52         | S-10B                                                                                                   |                                                                                            |                   |                  | 14         | 23                  |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 53         |                                                                                                         | Gray to brown m-c SAND, some gravel with pieces of reddish sandstone (wet) [POSSIBLE FILL] |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 54         |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| 55                                                                                  | S-11       | SS                                                                                                      |                                                                                            | 6                 | 100/1"           | 100/1"     |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|   | -39.6      |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     | Drill to 55'<br>Take S-11<br>Start RUN 1 at 1:37 PM                                 |                                                                 |                                                                       |
|                                                                                     |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 56         | White SANDSTONE [ROCK]                                                                                  | RUN 1<br>CORE                                                                              | REC=57"/60" =95%  | RQD=50"/60" =83% |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 57         |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 58         |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 59         |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     | Stop RUN 1 at 1:51 PM<br>Start RUN 2 at 2:18 PM                 |                                                                       |
|                                                                                     | 60         |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 61         |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|                                                                                     | 62         | White/pink SANDSTONE [ROCK]                                                                             | RUN 2<br>CORE                                                                              | REC=60"/60" =100% | RQD=44"/60" =73% |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| 63                                                                                  |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| 64                                                                                  |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| 65                                                                                  |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    | Stop RUN 2 at 2:34 PM                                                               |                                                                                     |                                                                 |                                                                       |
| 66                                                                                  |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| 67                                                                                  |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| 68                                                                                  |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| 69                                                                                  |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
| 70                                                                                  |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|  | -43.6      | White SANDSTONE [ROCK]                                                                                  |                                                                                            |                   |                  |            |                     |                    |                                                                                     | Drill to 55'<br>Take S-11<br>Start RUN 1 at 1:37 PM                                 |                                                                 |                                                                       |
|                                                                                     |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |
|  | -53.6      | End of boring at 65'                                                                                    |                                                                                            |                   |                  |            |                     |                    |                                                                                     | Stop RUN 2 at 2:34 PM                                                               |                                                                 |                                                                       |
|                                                                                     |            |                                                                                                         |                                                                                            |                   |                  |            |                     |                    |                                                                                     |                                                                                     |                                                                 |                                                                       |

|                                                              |  |                     |  |                                      |  |                                                     |  |
|--------------------------------------------------------------|--|---------------------|--|--------------------------------------|--|-----------------------------------------------------|--|
| Project<br>Sinatra Drive North                               |  |                     |  | Project No.<br>100219304             |  |                                                     |  |
| Location<br>Hoboken, N.J.                                    |  |                     |  | Elevation and Datum<br>Approx. 11.35 |  |                                                     |  |
| Drilling Company<br>Warren George, Inc.                      |  |                     |  | Date Started<br>10/23/13             |  | Date Finished<br>10/24/13                           |  |
| Drilling Equipment<br>B-40 Truck Mounted Rig                 |  |                     |  | Completion Depth<br>63 ft            |  | Rock Depth<br>54 ft                                 |  |
| Size and Type of Bit<br>2 7/8" & 4 7/8" Tri-Cone Roller Bits |  |                     |  | Number of Samples<br>Disturbed 11    |  | Undisturbed 0                                       |  |
| Casing Diameter (in)<br>5" O.D. Steel                        |  | Casing Depth (ft)   |  | Water Level (ft.)<br>First 9 (Tide)  |  | Completion 24 HR                                    |  |
| Casing Hammer<br>Donut                                       |  | Weight (lbs)<br>225 |  | Drop (in)<br>30                      |  | Drilling Foreman<br>Gill Burgess                    |  |
| Sampler<br>2" Split Spoon                                    |  | Weight (lbs)<br>140 |  | Drop (in)<br>30                      |  | Inspecting Engineer<br>Derek J. Dorrah/Ko Hung Chan |  |

L:\LANGAN\COM\DATA\REPORT\DATA\100219304\ENGINEERING\DATA\GEO\TECHNICAL\GINT\LOGS\100219304.GPJ 12/10/2013 9:54:04 AM Report Log - LANGAN Template TEMPLATE GOT

| MATERIAL SYMBOL | Elev. (ft) | Sample Description               | Coring (min) | Depth Scale | Sample Data |      |            |                      |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|-----------------|------------|----------------------------------|--------------|-------------|-------------|------|------------|----------------------|--------------------|-------------------------------------------------------------------------------------|
|                 |            |                                  |              |             | Number      | Type | Recov (in) | Penetr resist BLU/in | N-Value (Blows/ft) |                                                                                     |
|                 | +11.4      |                                  |              | 0           |             |      |            |                      | 10 20 30 40        |                                                                                     |
|                 | +10.5      | ASPHALT (10")                    |              | 1           |             |      |            |                      |                    | Start drilling 10:30 AM<br>Drilled down to 13'                                      |
|                 |            |                                  |              | 2           |             |      |            |                      |                    |                                                                                     |
|                 |            | Brown m-c SAND (dry) [FILL]      |              | 3           |             |      |            |                      |                    |                                                                                     |
|                 | +7.8       |                                  |              | 4           |             |      |            |                      |                    |                                                                                     |
|                 |            | CONCRETE SLAB                    |              | 5           |             |      |            |                      |                    |                                                                                     |
|                 | +6.4       |                                  |              | 6           |             |      |            |                      |                    |                                                                                     |
|                 |            | VOID between 5' to 13'           |              | 7           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                  |              | 8           |             |      |            |                      |                    |                                                                                     |
|                 | +2.4       | Approx. water level              |              | 9           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                  |              | 10          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                  |              | 11          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                  |              | 12          |             |      |            |                      |                    |                                                                                     |
|                 | -1.7       | Mud line                         |              | 13          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                  |              | 14          | S-1         | SS   | 3          | 9                    | 13                 | Installed 15' of casing<br>Take S-1                                                 |
|                 |            | GRAVEL AND ROCK FRAGMENTS [FILL] |              | 15          |             |      |            | 5                    | 4                  |                                                                                     |
|                 |            |                                  |              | 16          | S-2         | SS   | 2          | 5                    | 3                  | Take S-2                                                                            |
|                 |            | GRAVEL AND ROCK FRAGMENTS [FILL] |              | 17          |             |      |            | 10                   | 9                  |                                                                                     |
|                 |            |                                  |              | 18          |             |      |            |                      |                    | Installed 5' of casing                                                              |
|                 |            |                                  |              | 19          |             |      |            |                      |                    |                                                                                     |
|                 | -8.7       |                                  |              | 20          |             |      |            |                      |                    |                                                                                     |

|                                                                                    |            |                     |              |                     |             |               |            |                     |                                                                                     |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Project                                                                            |            | Sinatra Drive North |              | Project No.         |             | 100219304     |            |                     |                                                                                     |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Location                                                                           |            | Hoboken, N.J.       |              | Elevation and Datum |             | Approx. 11.35 |            |                     |                                                                                     |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| MATERIAL SYMBOL                                                                    | Elev. (ft) | Sample Description  | Coring (min) | Depth Scale         | Sample Data |               |            |                     | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                                                                    |            |                     |              |                     | Number      | Type          | Recov (in) | Penetr resist BUCin |                                                                                     | N-Value (Blows/ft) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |            |                     |              | 20                  |             |               |            | 2                   |                                                                                     |                    |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

I:\LANGAN COM\DATA\EP\DATA3\100219304\ENGINEERING DATA\GEO\TECHNICAL\GINT\LOGS\100219304.GPJ 12/10/2013 9:54:04 AM Report Log - LANGAN Template TEMPLATE.GDT

| Project             |           |                                                                          | Project No          |             |             |      |            |                     |                    |                                                                                     |
|---------------------|-----------|--------------------------------------------------------------------------|---------------------|-------------|-------------|------|------------|---------------------|--------------------|-------------------------------------------------------------------------------------|
| Sinatra Drive North |           |                                                                          | 100219304           |             |             |      |            |                     |                    |                                                                                     |
| Location            |           |                                                                          | Elevation and Datum |             |             |      |            |                     |                    |                                                                                     |
| Hoboken, N.J.       |           |                                                                          | Approx. 11.35       |             |             |      |            |                     |                    |                                                                                     |
| MATERIAL SYMBOL     | Elev (ft) | Sample Description                                                       | Coring (min)        | Depth Scale | Sample Data |      |            |                     |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc ) |
|                     |           |                                                                          |                     |             | Number      | Type | Recov (in) | Penetr resist BL/ft | N-Value (Blows/ft) |                                                                                     |
|                     | -34.7     | GRAVEL, trace gray fine sand and silt (wet) [FILL]                       |                     | 45          | S-8         | SS   | 1          | 100/2"              | 100/2"             | Resume drilling at 9:00 AM on 10/24/13                                              |
|                     |           |                                                                          |                     | 46          |             |      |            |                     |                    | Install casing to 45'                                                               |
|                     |           |                                                                          |                     | 47          | S-9         | SS   | 2          | 100/2"              | 100/2"             | Drill to 45'                                                                        |
|                     |           | RIVER MUD with pieces of wood (possible piece of wood pile)              |                     | 48          |             |      |            |                     |                    | Rig chatter at 44' to 45'                                                           |
|                     |           |                                                                          |                     | 49          |             |      |            |                     |                    | Take S-8                                                                            |
|                     |           |                                                                          |                     | 50          |             |      |            | 7                   |                    | Loose return water at 45'                                                           |
|                     |           | BLACK RIVER MUD (soft clay), trace pebble, strong organic/petroleum odor |                     | 51          | S-10        | SS   | 1          | 7                   | 8                  | Possible boulder at 46'                                                             |
|                     |           |                                                                          |                     | 52          |             |      |            | 7                   | 7                  | Install casing to 46'                                                               |
|                     |           |                                                                          |                     | 53          |             |      |            |                     |                    | Rig chatter at 45'                                                                  |
|                     |           |                                                                          |                     | 54          | S-11        | SS   | 1          | 100/1"              | 100/1"             | Drill to 47'                                                                        |
|                     | -42.7     | Pieces of WOOD mixed with sand                                           |                     | 54          |             |      |            |                     |                    | No water return                                                                     |
|                     |           | Highly weathered beige SANDSTONE                                         | 2:45                | 55          |             |      |            |                     |                    | Installed 4" O.D. casing to 50'                                                     |
|                     |           |                                                                          | 3:05                | 56          |             |      |            |                     |                    | Drill to 50'                                                                        |
|                     |           | Gray SANDSTONE [ROCK]                                                    | 2:25                | 57          | RUN 1       | CORE |            | REC=56"/50" =93%    | RQD=54"/50" =90%   | At 49', brown water return                                                          |
|                     |           |                                                                          | 2:20                | 58          |             |      |            |                     |                    | At 50' gray water return                                                            |
|                     |           |                                                                          | 2:10                | 59          |             |      |            |                     |                    | Oil in tub from treated wood pile                                                   |
|                     |           |                                                                          | 8:50                | 60          |             |      |            |                     |                    | Take S-11                                                                           |
|                     |           | Gray SANDSTONE [ROCK]                                                    | 3:30                | 61          | RUN 2       | CORE |            | REC=40"/48" =83%    | RQD=30"/48" =63%   | Hard drilling at 52'                                                                |
|                     |           |                                                                          | 3:30                | 62          |             |      |            |                     |                    | Take S-11                                                                           |
|                     |           |                                                                          | 3:00                | 63          |             |      |            |                     |                    | Drill to 55', stop at 54'                                                           |
|                     | -51.7     | End of boring at 63'                                                     |                     | 63          |             |      |            |                     |                    | Start RUN 1 at 1:09 PM                                                              |
|                     |           |                                                                          |                     | 64          |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     | 65          |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     | 66          |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     | 67          |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     | 68          |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     | 69          |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     | 70          |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    | Stop RUN 1 at 1:22 PM                                                               |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    | Start RUN 2 at 1:45 PM                                                              |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
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|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          |                     |             |             |      |            |                     |                    |                                                                                     |
|                     |           |                                                                          | </                  |             |             |      |            |                     |                    |                                                                                     |

Stop RUN 1 at 1:22 PM  
Start RUN 2 at 1:45 PM

Stop RUN 2 at 2:05 PM

|                            |  |  |  |                     |  |               |  |
|----------------------------|--|--|--|---------------------|--|---------------|--|
| Project                    |  |  |  | Project No          |  |               |  |
| Sinatra Drive North        |  |  |  | 100219304           |  |               |  |
| Location                   |  |  |  | Elevation and Datum |  |               |  |
| Hoboken, N.J.              |  |  |  | Approx. 11.25       |  |               |  |
| Drilling Company           |  |  |  | Date Started        |  | Date Finished |  |
| Warren George, Inc.        |  |  |  | 10/22/13            |  | 10/22/13      |  |
| Drilling Equipment         |  |  |  | Completion Depth    |  | Rock Depth    |  |
| B-40 Truck Mounted Rig     |  |  |  | 69 ft               |  | 59 ft         |  |
| Size and Type of Bit       |  |  |  | Number of Samples   |  | Disturbed     |  |
| 2 7/8" Tri-Cone Roller Bit |  |  |  | 12                  |  | Undisturbed   |  |
| Casing Diameter (in)       |  |  |  | First               |  | Completion    |  |
| 3" O.D. Steel              |  |  |  | 10                  |  | 24 HR         |  |
| Casing Hammer              |  |  |  | Drilling Foreman    |  |               |  |
| Donut                      |  |  |  | Gill Burgess        |  |               |  |
| Weight (lbs)               |  |  |  | Inspecting Engineer |  |               |  |
| 225                        |  |  |  | Derek J. Dorrah     |  |               |  |
| Drop (in)                  |  |  |  |                     |  |               |  |
| 30                         |  |  |  |                     |  |               |  |
| Sampler                    |  |  |  |                     |  |               |  |
| 2" Split Spoon             |  |  |  |                     |  |               |  |
| Sampler Hammer             |  |  |  |                     |  |               |  |
| Weight (lbs)               |  |  |  |                     |  |               |  |
| 140                        |  |  |  |                     |  |               |  |
| Drop (in)                  |  |  |  |                     |  |               |  |
| 30                         |  |  |  |                     |  |               |  |

| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                                         | Depth Scale | Sample Data |      |            |                      |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|-----------------|------------|----------------------------------------------------------------------------|-------------|-------------|------|------------|----------------------|--------------------|-------------------------------------------------------------------------------------|
|                 |            |                                                                            |             | Number      | Type | Recon (in) | Penetr resist        | N-Value (Blows/ft) |                                                                                     |
|                 | +11.3      | ASPHALT (11")                                                              | 0           |             |      |            |                      |                    | Start drilling at 9:01 AM on 10/22/13                                               |
|                 | +10.3      |                                                                            | 1           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 2           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 3           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 4           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 5           |             |      |            |                      |                    |                                                                                     |
|                 |            | Brown m-c SAND, some gravel, trace red brick [FILL]                        | 6           | S-1         | SS   | 22         | 33<br>72<br>30<br>16 | 102                | Drill to 5'<br>Take S-1                                                             |
|                 |            |                                                                            | 7           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 8           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 9           |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 10          |             |      |            |                      |                    |                                                                                     |
|                 |            | Brown m-c SAND, some gravel (wet) [FILL]                                   | 11          | S-2         | SS   | 10         | 7<br>8<br>7<br>10    | 15                 | Drill to 10'<br>Take S-2<br>Install 10' of casing                                   |
|                 |            |                                                                            | 12          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 13          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 14          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 15          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 16          | S-3         | SS   | 12         | 43<br>15<br>20<br>18 | 35                 | Drill to 15'<br>Rig chatter<br>Install 5' of casing<br>Take S-3                     |
|                 |            | GRAVEL/rock fragments, pieces of concrete, some gray m-c sand (wet) [FILL] | 17          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 18          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 19          |             |      |            |                      |                    |                                                                                     |
|                 |            |                                                                            | 20          |             |      |            |                      |                    |                                                                                     |

| Project                                                                           |           | Project No                                                                       |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|-----------------------------------------------------------------------------------|-----------|----------------------------------------------------------------------------------|---------------------------------------------------------------|-------------|------|------------|---------------|--------------------|-------------------------------------------------------------------------------------|--------------------------------------------------|--|
| Sinatra Drive North                                                               |           | 100219304                                                                        |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
| Location                                                                          |           | Elevation and Datum                                                              |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
| Hoboken, N.J.                                                                     |           | Approx. 11.25                                                                    |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
| MATERIAL SYMBOL                                                                   | Elev (ft) | Sample Description                                                               | Depth Scale                                                   | Sample Data |      |            |               |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |                                                  |  |
|                                                                                   |           |                                                                                  |                                                               | Number      | Type | Recov (in) | Penetr resist | N-Value (Blows/ft) |                                                                                     |                                                  |  |
|  |           | Gray-black MUD with crushed stone fragments (wet) [FILL]                         | 20                                                            |             |      |            |               |                    |                                                                                     | Drill to 20'<br>Install 5' of casing<br>Take S-4 |  |
|                                                                                   |           |                                                                                  | 21                                                            | S-4         | SS   | 6          | 5             | 14                 |                                                                                     |                                                  |  |
|                                                                                   |           |                                                                                  | 22                                                            |             |      |            | 9             | 5                  |                                                                                     |                                                  |  |
|                                                                                   |           |                                                                                  |                                                               | 23          |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           | 24                                                                               |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           | 25                                                                               |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           | -12.8                                                                            | STONE FRAGMENTS, some fine sand, gravel and silt (wet) [FILL] | 26          | S-5  | SS         | 4             | 8                  | 17                                                                                  | Drill to 25'<br>Take S-5<br>Install 5' of casing |  |
|                                                                                   |           | 27                                                                               |                                                               |             |      |            | 9             | 4                  |                                                                                     |                                                  |  |
|                                                                                   |           | 28                                                                               |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           |                                                                                  |                                                               | 29          |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 30        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 31        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | -18.8     | GRAVEL, trace fine sand and silt (wet) [FILL]                                    | 32                                                            | S-6         | SS   | 1          | 8             | 14                 | Drill to 30'<br>Take S-6<br>Install 5' of casing                                    |                                                  |  |
|                                                                                   | 33        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 34        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           |                                                                                  | 35                                                            |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 36        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 37        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | -26.8     | GRAVEL(angular stone fragments) with MUD, some fine sand, some silt (wet) [FILL] | 38                                                            | S-7         | SS   | 4          | 15            | 20                 | Drill to 35'<br>Take S-7<br>Install 5' of casing                                    |                                                  |  |
|                                                                                   | 39        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 40        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           |                                                                                  | 41                                                            |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 42        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 43        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           |                                                                                  | 44                                                            |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | 45        |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           |                                                                                  |                                                               |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   | -33.8     | Black silty CLAY, trace gravel, fine sand, organic smell                         | 46                                                            | S-8         | SS   | 10         | 7             | 9                  | Drill to 40'<br>Take S-8<br>Install 5' of casing                                    |                                                  |  |
|                                                                                   |           |                                                                                  | 47                                                            |             |      |            |               |                    |                                                                                     |                                                  |  |
|                                                                                   |           |                                                                                  | 48                                                            |             |      |            |               |                    |                                                                                     |                                                  |  |

W:\LANGAN COM\DATA\EP\DATA\31\100219304\ENGINEERING DATA\GEO\TECH\GINT\LOGS\100219304.GPJ 12/10/2013 9:54:08 AM Report Log - LANGAN Template TEMPLATE GDT

| Project             |            | Project No                                                 |             |               |      |                   |                     |                    |                                                                                     |
|---------------------|------------|------------------------------------------------------------|-------------|---------------|------|-------------------|---------------------|--------------------|-------------------------------------------------------------------------------------|
| Sinatra Drive North |            | 100219304                                                  |             |               |      |                   |                     |                    |                                                                                     |
| Location            |            | Elevation and Datum                                        |             |               |      |                   |                     |                    |                                                                                     |
| Hoboken, N.J.       |            | Approx. 11.25                                              |             |               |      |                   |                     |                    |                                                                                     |
| MATERIAL SYMBOL     | Elev. (ft) | Sample Description                                         | Depth Scale | Sample Data   |      |                   |                     |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc ) |
|                     |            |                                                            |             | Number        | Type | Recov (in)        | Penetr. resist SUEM | N-Value (Blows/ft) |                                                                                     |
|                     | -38.8      | Black m-c SAND, some gravel and rock fragments, trace silt | 45          | S-9           | SS   | 24                | 6                   | 21                 | Drill to 45'<br>Take S-9                                                            |
|                     |            |                                                            | 46          |               |      |                   | 13                  |                    |                                                                                     |
|                     |            |                                                            | 47          |               |      |                   | 8                   |                    |                                                                                     |
|                     |            |                                                            | 48          |               |      |                   | 8                   |                    |                                                                                     |
|                     |            |                                                            | 49          |               |      |                   |                     |                    |                                                                                     |
|                     | -38.8      | Reddish brown dense SILT, some fine sand, trace clay       | 50          | S-10          | SS   | 14                | 21                  | 90                 | Drill to 50'<br>Take S-10                                                           |
|                     |            |                                                            | 51          |               |      |                   | 23                  |                    |                                                                                     |
|                     |            |                                                            | 52          |               |      |                   | 67                  |                    |                                                                                     |
|                     |            |                                                            | 53          |               |      |                   | 50/1"               |                    |                                                                                     |
|                     |            |                                                            | 54          |               |      |                   |                     |                    |                                                                                     |
|                     | -45.8      | Reddish brown m-c SAND, some gray silty clay               | 55          | S-11          | SS   | 24                | 32                  | 100/3"             | Drill to 55'<br>Rig chatter<br>Take S-11                                            |
|                     |            |                                                            | 56          |               |      |                   | 84                  |                    |                                                                                     |
|                     |            |                                                            | 57          |               |      |                   | 100/3"              |                    |                                                                                     |
|                     |            |                                                            | 58          |               |      |                   |                     |                    |                                                                                     |
|                     |            |                                                            | 59          |               |      |                   |                     |                    |                                                                                     |
|                     | -57.8      | Pink and white SANDSTONE [ROCK]                            | 60          | RUN 1<br>CORE |      | REC=60"/60" =100% | RQD=57.5"/60" =96%  |                    | Drill to 59'<br>Start RUN 1 at 59' at 2:40 PM                                       |
|                     |            |                                                            | 61          |               |      |                   |                     |                    |                                                                                     |
|                     |            |                                                            | 62          |               |      |                   |                     |                    |                                                                                     |
|                     |            |                                                            | 63          |               |      |                   |                     |                    |                                                                                     |
|                     |            |                                                            | 64          |               |      |                   |                     |                    |                                                                                     |
|                     | -57.8      | Pink and white SANDSTONE [ROCK]                            | 65          | RUN 2<br>CORE |      | REC=54"/60" =90%  | RQD=49"/60" =82%    |                    | Stop RUN 1 at 64' at 2:57 PM<br>Start RUN 2 at 64' at 3:14 PM                       |
|                     |            |                                                            | 66          |               |      |                   |                     |                    |                                                                                     |
|                     |            |                                                            | 67          |               |      |                   |                     |                    |                                                                                     |
|                     |            |                                                            | 68          |               |      |                   |                     |                    |                                                                                     |
|                     |            |                                                            | 69          |               |      |                   |                     |                    |                                                                                     |
|                     |            | End of boring at 69'                                       | 70          |               |      |                   |                     |                    | Stop RUN 2 at 69' at 3:36 PM                                                        |

|                                                    |  |                     |  |                                     |  |                                        |  |
|----------------------------------------------------|--|---------------------|--|-------------------------------------|--|----------------------------------------|--|
| Project<br>Sinatra Drive North                     |  |                     |  | Project No<br>100219304             |  |                                        |  |
| Location<br>Hoboken, N.J.                          |  |                     |  | Elevation and Datum<br>Approx. 10.5 |  |                                        |  |
| Drilling Company<br>Warren George, Inc.            |  |                     |  | Date Started<br>10/15/13            |  | Date Finished<br>10/18/13              |  |
| Drilling Equipment<br>B-40 Truck Mounted Rig       |  |                     |  | Completion Depth<br>62 ft           |  | Rock Depth<br>52 ft                    |  |
| Size and Type of Bit<br>2 7/8" Tri-Cone Roller Bit |  |                     |  | Number of Samples<br>Disturbed 11   |  | Undisturbed 0                          |  |
| Casing Diameter (in)<br>4" O.D. Steel              |  | Casing Depth (ft)   |  | Water Level (ft.)<br>First 10       |  | Completion 24 HR                       |  |
| Casing Hammer<br>Donut                             |  | Weight (lbs)<br>225 |  | Drop (in)<br>30                     |  | Drilling Foreman<br>Gill Burgess       |  |
| Sampler<br>2" Split Spoon                          |  | Weight (lbs)<br>140 |  | Drop (in)<br>30                     |  | Inspecting Engineer<br>Derek J. Dorrah |  |

| MATERIAL SYMBOL | Elev (ft) | Sample Description                                                               | Depth Scale | Sample Data |      |            |                     |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|-----------------|-----------|----------------------------------------------------------------------------------|-------------|-------------|------|------------|---------------------|--------------------|-------------------------------------------------------------------------------------|
|                 |           |                                                                                  |             | Number      | Type | Recov (in) | Penetr resist BL/in | N-Value (Blows/ft) |                                                                                     |
|                 | +10.5     |                                                                                  | 0           |             |      |            |                     | 10 20 30 40        |                                                                                     |
|                 | +9.7      | ASPHALT (10")                                                                    | 1           |             |      |            |                     |                    | Start drilling at 9:15 AM                                                           |
|                 |           | Brown m-c SAND, some gravel [FILL]                                               | 2           |             |      |            |                     |                    |                                                                                     |
|                 |           |                                                                                  | 3           |             |      |            |                     |                    |                                                                                     |
|                 |           |                                                                                  | 4           |             |      |            |                     |                    |                                                                                     |
|                 |           |                                                                                  | 5           |             |      |            | 9                   |                    |                                                                                     |
|                 |           | Brown m-f SAND [FILL]                                                            | 6           | S-1         | SS   | 12         | 14                  |                    | Drill to 5'                                                                         |
|                 |           |                                                                                  | 7           |             |      |            | 18                  |                    | Take S-1                                                                            |
|                 | +3.1      | CONCRETE SLAB (12")                                                              | 8           |             |      |            | 19                  |                    |                                                                                     |
|                 | +2.1      |                                                                                  | 9           |             |      |            |                     |                    | Rig chatter at 7.5'                                                                 |
|                 |           |                                                                                  | 10          |             |      |            |                     |                    | Slow drill, cored through concrete at 7.5'                                          |
|                 |           | Brown silty SAND, some gravel (wet) [FILL]                                       | 11          | S-2         | SS   | 5          | 1                   |                    | Abandoned pipe (8")                                                                 |
|                 |           |                                                                                  | 12          |             |      |            | 1                   |                    |                                                                                     |
|                 |           |                                                                                  | 13          |             |      |            |                     |                    |                                                                                     |
|                 |           |                                                                                  | 14          |             |      |            |                     |                    |                                                                                     |
|                 | -4.5      | GRAVEL (crushed stone)/gray angular stone, trace silt and fine sand (wet) [FILL] | 15          | S-3         | SS   | 1          | 9                   |                    | Drill to 10'                                                                        |
|                 |           |                                                                                  | 16          |             |      |            | 5                   |                    | Install casing to 5'                                                                |
|                 |           |                                                                                  | 17          |             |      |            | 4                   |                    | Take S-2                                                                            |
|                 |           |                                                                                  | 18          |             |      |            | 8                   |                    |                                                                                     |
|                 |           |                                                                                  | 19          |             |      |            |                     |                    |                                                                                     |
|                 |           |                                                                                  | 20          |             |      |            |                     |                    | Take S-3                                                                            |

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|          |                     |                     |              |
|----------|---------------------|---------------------|--------------|
| Project  | Sinatra Drive North | Project No.         | 100219304    |
| Location | Hoboken, N.J.       | Elevation and Datum | Approx. 10.5 |

| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                               | Depth Scale | Sample Data |      |            |               |        |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|-----------------|------------|------------------------------------------------------------------|-------------|-------------|------|------------|---------------|--------|--------------------|-------------------------------------------------------------------------------------|
|                 |            |                                                                  |             | Number      | Type | Recon (in) | Penetr resist | BLU/in | N-Value (Blows/ft) |                                                                                     |
|                 |            |                                                                  | 20          |             |      |            | 10            |        |                    |                                                                                     |
|                 |            | Gray ANGULAR STONE, some silt, fine sand and gravel (wet) [FILL] | 21          | S-4         | SS   | 9          | 9             |        | 17                 | Drill to 20'<br>Take S-4<br>Install 5' of casing                                    |
|                 |            |                                                                  | 22          |             |      |            | 8             |        |                    |                                                                                     |
|                 |            |                                                                  | 23          |             |      |            | 13            |        |                    |                                                                                     |
|                 |            |                                                                  | 24          |             |      |            |               |        |                    |                                                                                     |
|                 | -14.5      |                                                                  | 25          |             |      |            | 12            |        |                    |                                                                                     |
|                 |            | GRAVEL/gray angular stone [FILL]                                 | 26          | S-5         | SS   | 1          | 7             |        | 14                 | Drill to 25'<br>Slight rig chatter<br>Take S-5<br>Install 5' of casing              |
|                 |            |                                                                  | 27          |             |      |            | 7             |        |                    |                                                                                     |
|                 |            |                                                                  | 28          |             |      |            | 6             |        |                    |                                                                                     |
|                 | -18.5      |                                                                  | 29          |             |      |            |               |        |                    |                                                                                     |
|                 |            |                                                                  | 30          |             |      |            | 9             |        |                    |                                                                                     |
|                 |            | Dark gray SILT, trace fine sand (wet) [FILL]                     | 31          | S-6         | SS   | 11         | 6             |        | 12                 | Drill to 30'<br>Take S-6<br>Install 5' of casing                                    |
|                 |            |                                                                  | 32          |             |      |            | 6             |        |                    |                                                                                     |
|                 |            |                                                                  | 33          |             |      |            | 7             |        |                    |                                                                                     |
|                 |            |                                                                  | 34          |             |      |            |               |        |                    |                                                                                     |
|                 |            |                                                                  | 35          |             |      |            | 5             |        |                    |                                                                                     |
|                 |            | Dark gray SILT, trace fine sand (wet) [FILL]                     | 36          | S-7         | SS   | 2          | 2             |        | 5                  | Take S-7                                                                            |
|                 |            |                                                                  | 37          |             |      |            | 3             |        |                    |                                                                                     |
|                 |            |                                                                  | 38          |             |      |            | 3             |        |                    |                                                                                     |
|                 |            | Dark gray SILT, some fine sand, trace sand (wet) [FILL]          | 39          | S-8         | SS   | 3          | 4             |        | 7                  | Take S-8<br>Install 5' of casing                                                    |
|                 |            |                                                                  | 40          |             |      |            | 3             |        |                    |                                                                                     |
|                 | -29.0      |                                                                  | 41          |             |      |            | 10            |        |                    |                                                                                     |
|                 |            | Brown m-f SAND, some silt and gravel [FILL]                      | 42          | S-9         | SS   | 3          | 100/3"        |        | 100/3"             | Drill to 40'<br>Take S-9                                                            |
|                 |            |                                                                  | 43          |             |      |            |               |        |                    |                                                                                     |
|                 |            |                                                                  | 44          |             |      |            |               |        |                    |                                                                                     |
|                 |            |                                                                  | 45          |             |      |            |               |        |                    | End of day at 3:10 PM<br>Started drilling at 9:10 AM                                |

| Project             |           |                                      | Project No          |             |      |            |                        |                                          |                                                                                     |
|---------------------|-----------|--------------------------------------|---------------------|-------------|------|------------|------------------------|------------------------------------------|-------------------------------------------------------------------------------------|
| Sinatra Drive North |           |                                      | 100219304           |             |      |            |                        |                                          |                                                                                     |
| Location            |           |                                      | Elevation and Datum |             |      |            |                        |                                          |                                                                                     |
| Hoboken, N.J.       |           |                                      | Approx. 10.5        |             |      |            |                        |                                          |                                                                                     |
| MATERIAL SYMBOL     | Elev (ft) | Sample Description                   | Depth Scale         | Sample Data |      |            |                        |                                          | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc ) |
|                     |           |                                      |                     | Number      | Type | Recov (in) | Penetr resist<br>BL/ft | N-Value<br>(Blows/ft)<br>10 20 30 40     |                                                                                     |
|                     | -36.5     | Pieces of WOOD, gravel<br>[FILL]     | 45                  | S-10        | SS   |            | 29                     | 101                                      | Take S-10<br>Drill to 50'<br>(Possible abandoned pile)                              |
|                     |           | 46                                   | 19                  |             |      | 43         |                        |                                          |                                                                                     |
|                     |           | 47                                   |                     |             |      | 58         |                        |                                          |                                                                                     |
|                     | -39.5     | Reddish brown silty CLAY, trace wood | 48                  | S-11        | SS   |            | 77                     | 100/6"                                   | Rig broke down<br>Off site at 2:30 PM                                               |
|                     |           | 49                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     |           | 50                                   | 8                   |             |      | 100/6"     |                        |                                          |                                                                                     |
|                     | -41.5     | Reddish brown silty CLAY, trace wood | 51                  | RUN 1       | CORE |            |                        | REC=60"/60" = 100%<br>RQD=60"/60" = 100% | Started at 8:45 AM<br>Reddish brown drill mud<br>Take S-11                          |
|                     |           | 52                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     |           | 53                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     | -51.5     | Pink SANDSTONE<br>[ROCK]             | 54                  | RUN 2       | CORE |            |                        | REC=60"/60" = 100%<br>RQD=60"/60" = 100% | Start RUN 1 at 10:34 AM                                                             |
|                     |           | 55                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     |           | 56                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     | -51.5     | White SANDSTONE<br>[ROCK]            | 57                  | RUN 2       | CORE |            |                        | REC=60"/60" = 100%<br>RQD=60"/60" = 100% | Start RUN 2 at 11:07 AM                                                             |
|                     |           | 58                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     |           | 59                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     | -51.5     | End of boring at 62'                 | 60                  | RUN 2       | CORE |            |                        | REC=60"/60" = 100%<br>RQD=60"/60" = 100% | Stop RUN 2 at 11:24 AM                                                              |
|                     |           | 61                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     |           | 62                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     | -51.5     |                                      | 63                  | RUN 2       | CORE |            |                        | REC=60"/60" = 100%<br>RQD=60"/60" = 100% |                                                                                     |
|                     |           | 64                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     |           | 65                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     | -51.5     |                                      | 66                  | RUN 2       | CORE |            |                        | REC=60"/60" = 100%<br>RQD=60"/60" = 100% |                                                                                     |
|                     |           | 67                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     |           | 68                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     | -51.5     |                                      | 69                  | RUN 2       | CORE |            |                        | REC=60"/60" = 100%<br>RQD=60"/60" = 100% |                                                                                     |
|                     |           | 70                                   |                     |             |      |            |                        |                                          |                                                                                     |
|                     |           | 71                                   |                     |             |      |            |                        |                                          |                                                                                     |

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|                                                    |  |                     |                 |                                        |  |                           |  |
|----------------------------------------------------|--|---------------------|-----------------|----------------------------------------|--|---------------------------|--|
| Project<br>Sinatra Drive North                     |  |                     |                 | Project No<br>100219304                |  |                           |  |
| Location<br>Hoboken, N.J.                          |  |                     |                 | Elevation and Datum<br>Approx. 10.55   |  |                           |  |
| Drilling Company<br>Warren George, Inc.            |  |                     |                 | Date Started<br>10/14/13               |  | Date Finished<br>10/15/13 |  |
| Drilling Equipment<br>B-40 Truck Mounted Rig       |  |                     |                 | Completion Depth<br>65 ft              |  | Rock Depth<br>55 ft       |  |
| Size and Type of Bit<br>2 7/8" Tri-Cone Roller Bit |  |                     |                 | Number of Samples<br>Disturbed 11      |  | Undisturbed 0             |  |
| Casing Diameter (in)<br>4" O.D. Steel              |  |                     |                 | Casing Depth (ft)<br>52'               |  | Core 2                    |  |
| Casing Hammer<br>Donut                             |  | Weight (lbs)<br>225 | Drop (in)<br>30 | Water Level (ft.)<br>First 10          |  | Completion 24 HR.         |  |
| Sampler<br>2" Split Spoon                          |  |                     |                 | Drilling Foreman<br>Gill Burgess       |  |                           |  |
| Sampler Hammer<br>Weight (lbs) 140 Drop (in) 30    |  |                     |                 | Inspecting Engineer<br>Derek J. Dorrah |  |                           |  |

| MATERIAL SYMBOL | Elev. (ft) | Sample Description                                          | Depth Scale | Sample Data |      |            |                    |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|-----------------|------------|-------------------------------------------------------------|-------------|-------------|------|------------|--------------------|--------------------|-------------------------------------------------------------------------------------|
|                 |            |                                                             |             | Number      | Type | Recon (in) | Penet resist BL/ft | N-Value (Blows/ft) |                                                                                     |
|                 | +10.6      |                                                             | 0           |             |      |            |                    | 10 20 30 40        |                                                                                     |
|                 | +9.7       | ASPHALT (10")                                               | 1           |             |      |            |                    |                    | Start drilling at 9:30 AM                                                           |
|                 |            | Brown m-c SAND, some gravel [FILL]                          | 2           |             |      |            |                    |                    |                                                                                     |
|                 |            |                                                             | 3           |             |      |            |                    |                    |                                                                                     |
|                 |            |                                                             | 4           |             |      |            |                    |                    |                                                                                     |
|                 |            |                                                             | 5           |             |      |            |                    |                    |                                                                                     |
|                 |            | Brown m-c SAND, some gravel [FILL]                          | 6           | S-1         | SS   | 10         | 3                  | 5                  | Drill to 5'                                                                         |
|                 |            |                                                             | 7           |             |      |            | 6                  | 7                  | Take S-1                                                                            |
|                 |            |                                                             | 8           |             |      |            |                    |                    | Drill to 10'                                                                        |
|                 |            |                                                             | 9           |             |      |            |                    |                    | Install 10' of casing                                                               |
|                 |            |                                                             | 10          |             |      |            |                    |                    | Rig chatter                                                                         |
|                 | +0.6       |                                                             | 11          | S-2         | SS   | 8          | 7                  | 8                  | Take S-2                                                                            |
|                 |            | Reddish brown m-c SAND, some gravel (wet) [FILL]            | 12          |             |      |            | 4                  |                    |                                                                                     |
|                 |            |                                                             | 13          | S-3         | SS   | 7          | 11                 |                    | Take S-3                                                                            |
|                 |            | GRAVEL/gray angular stone, some m-c brown sand (wet) [FILL] | 14          |             |      |            | 23                 | 30                 |                                                                                     |
|                 |            |                                                             | 15          |             |      |            |                    |                    |                                                                                     |
|                 |            | Gray ANGULAR STONE [FILL]                                   | 16          | S-4         | SS   | 3          | 17                 | 10                 | Install 5' of casing                                                                |
|                 |            |                                                             | 17          |             |      |            | 18                 | 10                 | Drill to 15'                                                                        |
|                 |            |                                                             | 18          |             |      |            |                    |                    | Rig chatter                                                                         |
|                 |            |                                                             | 19          |             |      |            |                    |                    | Boulder encountered 14'-15',                                                        |
|                 |            |                                                             | 20          |             |      |            |                    |                    | cored through                                                                       |

|                                                                                    |                                               |                                                                    |             |                     |      |               |                     |                                                  |                                                                                         |
|------------------------------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------------------|-------------|---------------------|------|---------------|---------------------|--------------------------------------------------|-----------------------------------------------------------------------------------------|
| Project                                                                            |                                               | Sinatra Drive North                                                |             | Project No.         |      | 100219304     |                     |                                                  |                                                                                         |
| Location                                                                           |                                               | Hoboken, N.J.                                                      |             | Elevation and Datum |      | Approx. 10.55 |                     |                                                  |                                                                                         |
| MATERIAL SYMBOL                                                                    | Elev. (ft)                                    | Sample Description                                                 | Depth Scale | Number              | Type | Recov (in)    | Penetr resist BL/in | N-Value (Blows/ft)                               | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)     |
|  |                                               | Gray ANGULAR STONE, trace gray silt and fine sand (wet) [FILL]     | 20          |                     |      |               | 13                  |                                                  | Drill to 20'<br>Take S-5<br>Install 5' of casing                                        |
|                                                                                    |                                               |                                                                    | 21          | S-5                 | SS   | 3             | 14                  | 19                                               |                                                                                         |
|                                                                                    |                                               |                                                                    | 22          |                     |      |               | 5                   |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    | 23          |                     |      |               | 16                  |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    |             | 24                  |      |               |                     |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    |             | 25                  |      |               | 7                   |                                                  | Drill to 25'<br>Take S-6<br>Install 5' of casing                                        |
|                                                                                    |                                               | No recovery [FILL]                                                 | 26          | S-6                 | SS   | 0             | 12                  | 18                                               |                                                                                         |
|                                                                                    |                                               |                                                                    | 27          |                     |      |               | 6                   |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    | 28          |                     |      |               |                     |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    |             | 29                  |      |               |                     |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    |             | 30                  |      |               | 13                  |                                                  | Drill to 30'<br>Rig chatter<br>Take S-7<br>Install 5' of casing                         |
|                                                                                    |                                               | Gray ANGULAR STONE, trace gray silt [FILL]                         | 31          | S-7                 | SS   | 2             | 4                   | 7                                                |                                                                                         |
|                                                                                    |                                               |                                                                    | 32          |                     |      |               | 3                   |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    | 33          |                     |      |               | 4                   |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    |             | 34                  |      |               |                     |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    |             | 35                  |      |               |                     |                                                  | Drill to 35'<br>Take S-8<br>Install 5' of casing                                        |
|                                                                                    |                                               | GRAVEL [FILL]                                                      | 36          | S-8                 | SS   | 1             | 30                  | 40                                               |                                                                                         |
|                                                                                    |                                               |                                                                    | 37          |                     |      |               | 16                  |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    | 38          |                     |      |               | 24                  |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    |             | 39                  |      |               | 6                   |                                                  |                                                                                         |
|                                                                                    |                                               |                                                                    | 40          |                     |      |               |                     | Drill to 40'<br>Take S-9<br>Install 5' of casing |                                                                                         |
|                                                                                    | Dark gray CLAY, trace organics, organic smell | 41                                                                 | S-9         | SS                  | 8    | 52            | 8                   |                                                  |                                                                                         |
|                                                                                    |                                               | 42                                                                 |             |                     |      | 5             |                     |                                                  |                                                                                         |
|                                                                                    |                                               | 43                                                                 |             |                     |      | 3             |                     |                                                  |                                                                                         |
|                                                                                    |                                               | Dark gray CLAY, trace organics, trace gravel, slight organic smell | 44          | S-9A                | SS   | 10            | 2                   | 5                                                | Stopped drilling at 3:15 PM<br>Started drilling at 9:14 AM<br>Drill to 43'<br>Take S-9A |
|                                                                                    |                                               |                                                                    | 45          |                     |      | 3             | 5                   |                                                  |                                                                                         |

| Project             |            | Project No.                                                                       |             |             |      |            |                      |                    |                                                                                     |
|---------------------|------------|-----------------------------------------------------------------------------------|-------------|-------------|------|------------|----------------------|--------------------|-------------------------------------------------------------------------------------|
| Location            |            | Elevation and Datum                                                               |             |             |      |            |                      |                    |                                                                                     |
| Sinatra Drive North |            | 100219304                                                                         |             |             |      |            |                      |                    |                                                                                     |
| Hoboken, N.J.       |            | Approx. 10.55                                                                     |             |             |      |            |                      |                    |                                                                                     |
| MATERIAL SYMBOL     | Elev. (ft) | Sample Description                                                                | Depth Scale | Sample Data |      |            |                      |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.) |
|                     |            |                                                                                   |             | Number      | Type | Recon (in) | Penetr resist BL/6in | N-Value (Blows/ft) |                                                                                     |
|                     | -35.5      | Dark gray organic CLAY, river mud, strong organic odor                            | 45          |             |      |            |                      | 10 20 30 40        | Take S-10<br>Install 5' casing                                                      |
|                     | -36.5      | Dark gray SILT, some fine sand, trace gravel, trace organics, slight organic odor | 46          | S-10        | SS   | 24         | 35                   | 37                 |                                                                                     |
|                     | -38.0      |                                                                                   | 47          | S-10A       |      |            | 17                   |                    | Drill to 50'<br>Take S-11<br>Install 5' of casing                                   |
|                     | -39.0      | Gray-brown silty SAND                                                             | 48          |             |      |            | 24                   |                    |                                                                                     |
|                     | -44.5      |                                                                                   | 49          |             |      |            |                      |                    | Drill to 55'<br>Start RUN 1 at 12:04 PM                                             |
|                     | -45.5      | Pink and white SANDSTONE [ROCK]                                                   | 50          | S-11        | SS   | 11         | 22                   |                    |                                                                                     |
|                     | -54.5      |                                                                                   | 51          |             |      |            | 32                   |                    | Stop RUN 1 at 12:29 PM<br>Start RUN 2 at 1:02 PM                                    |
|                     | -55.5      | Pink and white SANDSTONE [ROCK]                                                   | 52          |             |      |            | 34                   |                    |                                                                                     |
|                     |            |                                                                                   | 53          |             |      |            | 89                   |                    | Stop RUN 2 at 1:25 PM                                                               |
|                     |            | End of boring at 65'                                                              | 54          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 55          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 56          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 57          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 58          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 59          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 60          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 61          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 62          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 63          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 64          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 65          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 66          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 67          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 68          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 69          |             |      |            |                      |                    |                                                                                     |
|                     |            |                                                                                   | 70          |             |      |            |                      |                    |                                                                                     |

ILANGAN COMDATA\PI\DATA3\100219304\ENGINEERING DATA\GEOTECHNICAL\GINTLOGS\100219304.GPJ 12/10/2013 9:54:21 AM Report Log - LANCAN Template TEMPLATE.GDT

| MATERIAL SYMBOL | Elev (ft) | Sample Description                                                                                                 | Coring (min) | Depth Scale | Sample Data |      |               |                            | N-Value (Blows/ft) | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)                                                                                                                                            |
|-----------------|-----------|--------------------------------------------------------------------------------------------------------------------|--------------|-------------|-------------|------|---------------|----------------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 |           |                                                                                                                    |              |             | Number      | Type | Recovery (in) | Penetration resist (lb/in) |                    |                                                                                                                                                                                                                                |
|                 | +10.7     | ASPHALT (8")                                                                                                       |              | 0           |             |      |               |                            |                    | WGI arrived 11:30 AM on 10/7/13<br>Set up on B-6<br>Start drilling 12:00 PM<br>Drill 1' through asphalt and subbase<br>Take S-1<br>Spoon refusal at 2'-7"<br>Set up 4" core barrel<br>Core approx. 2 feet of slab to open void |
|                 | +10.0     | Dense graded aggregate subbase [FILL]<br>Brown silty SAND, some concrete, some brick [FILL]                        |              | 1           |             |      |               | 30                         |                    |                                                                                                                                                                                                                                |
|                 | +8.1      |                                                                                                                    |              | 2           | S-1         | SS   | 10            | 43                         | 76                 |                                                                                                                                                                                                                                |
|                 | +7.7      | Possible ASPHALT (4")<br>CONCRETE SLAB with white plastic on top (vapor barrier?) and rebar<br>[CONCRETE PLATFORM] |              | 3           |             |      |               | 33<br>100/1"               |                    |                                                                                                                                                                                                                                |
|                 | +6.5      |                                                                                                                    |              | 4           | CORE        | CORE | 10            |                            |                    |                                                                                                                                                                                                                                |
|                 |           | VOID between 4'-2" and 13'                                                                                         |              | 5           |             |      |               |                            |                    |                                                                                                                                                                                                                                |
|                 |           |                                                                                                                    |              | 6           |             |      |               |                            |                    |                                                                                                                                                                                                                                |
|                 |           |                                                                                                                    |              | 7           |             |      |               |                            |                    |                                                                                                                                                                                                                                |
|                 | +2.7      | Approx. water level                                                                                                |              | 8           |             |      |               |                            |                    | Water level 8'-0"± below grade<br>Bottom of slab 5'-5"<br>Top of mud tub 1'-3"<br>Bottom of measurable slab from grade 4'-2"                                                                                                   |
|                 |           |                                                                                                                    |              | 9           |             |      |               |                            |                    |                                                                                                                                                                                                                                |
|                 |           |                                                                                                                    |              | 10          |             |      |               |                            |                    |                                                                                                                                                                                                                                |
|                 |           |                                                                                                                    |              | 11          |             |      |               |                            |                    |                                                                                                                                                                                                                                |
|                 |           |                                                                                                                    |              | 12          |             |      |               |                            |                    |                                                                                                                                                                                                                                |
|                 | -2.4      | Mud line                                                                                                           |              | 13          |             |      |               | 1                          |                    | Take S-3 at mud line<br>Low recovery                                                                                                                                                                                           |
|                 |           | Black angular GRAVEL (crushed stone) some coarse sand, trace silt, trace concrete [FILL]                           |              | 14          | S-3         | SS   | 1             | 3<br>5<br>5                | 8                  |                                                                                                                                                                                                                                |
|                 |           |                                                                                                                    |              | 15          |             |      |               | 17                         |                    | Take S-4<br>Low recovery                                                                                                                                                                                                       |
|                 |           | Black GRAVEL (crushed stone) trace c-f sand, trace silt [FILL]                                                     |              | 16          | S-4         | SS   | 1             | 5<br>6<br>4                | 11                 |                                                                                                                                                                                                                                |
|                 |           |                                                                                                                    |              | 17          |             |      |               | 4                          |                    | Take S-5<br>Low recovery                                                                                                                                                                                                       |
|                 |           | Gray and black GRAVEL, some coarse sand, trace brick fragments, trace silt [FILL]                                  |              | 18          | S-5         | SS   | 2             | 13<br>24<br>13             | 37                 |                                                                                                                                                                                                                                |
|                 |           |                                                                                                                    |              | 19          |             |      |               |                            |                    |                                                                                                                                                                                                                                |
|                 | -9.4      |                                                                                                                    |              | 20          |             |      |               |                            |                    |                                                                                                                                                                                                                                |

| Project                                                       |           | Project No.                                                                                          |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|---------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|-------------|-------------------------------------------------------------------|--------------------------------------------------------------|------------|--------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| Sinatra Drive North                                           |           | 100219304                                                                                            |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
| Location                                                      |           | Elevation and Datum                                                                                  |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
| Hoboken, N.J.                                                 |           | Approx. 10.65                                                                                        |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
| MATERIAL SYMBOL                                               | Elev (ft) | Sample Description                                                                                   | Coring (min)                                                  | Sample Data |                                                                   |                                                              |            |                                                              |                    | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)                                 |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               | Depth Scale | Number                                                            | Type                                                         | Recov (in) | Penetr resist BLU/in                                         | N-Value (Blows/ft) |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               | -14.4     | Grayish-black CLAY, some gravel, trace sand, trace roots, trace shells, trace brick fragments [FILL] |                                                               | 20          | S-6                                                               | SS                                                           | 6          | 6                                                            |                    | Drill to 20'<br>Rig chatter 13'-20'<br>Installed 4" O.D. casing to 20'<br>Loss of drilling fluid at 20'<br>Take S-6 |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               | 21          |                                                                   |                                                              |            | 6                                                            |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               | 22          |                                                                   |                                                              |            | 2                                                            |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               | 23          | S-7                                                               | SS                                                           | 3          | 7                                                            |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               | 24          |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               | 25          |                                                                   |                                                              |            | 8                                                            |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               | 26          | 3                                                                 |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               | 27          | 12                                                                |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           | Gray c-f GRAVEL (crushed stone) trace c-f sand, trace silt [FILL]                                    |                                                               |             | Gray c-f GRAVEL (crushed stone) trace c-f sand, trace silt [FILL] | 28                                                           |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               | 15 | Drive casing to 25'<br>Rig chatter 23' to 24' during drilling<br>Drill to 25', loss of drilling fluid<br>Take S-7 |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 29                                                           |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 30                                                           |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 31                                                           | S-8        | SS                                                           |                    |                                                                                                                     | 8                                                                                                                                                                                                                                                                             | 13 |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 32                                                           |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               | 12 |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 33                                                           |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               | 5  |                                                                                                                   |                                                                                                       |
| Gray c-f GRAVEL (crushed stone) some sand, trace silt [FILL]  |           |                                                                                                      | Gray c-f GRAVEL (crushed stone) some sand, trace silt [FILL]  |             |                                                                   | 34                                                           |            |                                                              |                    |                                                                                                                     | Rig chatter 27' to 30'<br>Foreman suspects drilling through gravel<br><br>Drill to 30'<br>Spoon is off plumb due to gravelly soils, need more casing<br>Stop drilling at 2:35 PM<br>Start 10/8/13 at 9:00 AM<br>Pulled 4" casing due to racking<br>Installed 5" casing to 30' |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 35                                                           |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           | 36                                                                                                   |                                                               | S-9         | SS                                                                | 1                                                            | 4          |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           | 37                                                                                                   |                                                               |             |                                                                   |                                                              | 9          |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           | 38                                                                                                   |                                                               |             |                                                                   |                                                              | 5          |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           | Gray c-m GRAVEL (crushed stone) [FILL]                                                               |                                                               |             | Gray c-m GRAVEL (crushed stone) [FILL]                            | 39                                                           | S-10       | SS                                                           | 2                  | 3                                                                                                                   |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 40                                                           |            |                                                              |                    | 6                                                                                                                   |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 41                                                           |            |                                                              |                    | 6                                                                                                                   |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
| Gray f-c GRAVEL (crushed stone) trace sand, trace silt [FILL] |           |                                                                                                      | Gray f-c GRAVEL (crushed stone) trace sand, trace silt [FILL] |             |                                                                   | 42                                                           | S-11       | SS                                                           | 6                  | 8                                                                                                                   |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 43                                                           |            |                                                              |                    | 10                                                                                                                  |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | 44                                                           |            |                                                              |                    | 16                                                                                                                  |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   | Gray c-f GRAVEL (crushed stone) some sand, trace silt [FILL] |            | Gray c-f GRAVEL (crushed stone) some sand, trace silt [FILL] | 45                 |                                                                                                                     |                                                                                                                                                                                                                                                                               |    | 5                                                                                                                 | Drill to 40'<br>Rig chattering 40' to 45'<br>Loss of fluid at 40'<br>Take S-11<br>Drive casing to 40' |
|                                                               |           |                                                                                                      |                                                               |             |                                                                   |                                                              |            |                                                              | 46                 |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           | 47                                                                                                   |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           | 48                                                                                                   |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
|                                                               |           | 49                                                                                                   |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
| 50                                                            |           |                                                                                                      |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
| 51                                                            |           |                                                                                                      |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |
| 52                                                            |           |                                                                                                      |                                                               |             |                                                                   |                                                              |            |                                                              |                    |                                                                                                                     |                                                                                                                                                                                                                                                                               |    |                                                                                                                   |                                                                                                       |

| Project             |           | Project No.                                                                                     |            |             |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|---------------------|-----------|-------------------------------------------------------------------------------------------------|------------|-------------|-------------|---------|-------------------|----------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| Sinatra Drive North |           | 100219304                                                                                       |            |             |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
| Location            |           | Elevation and Datum                                                                             |            |             |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
| Hoboken, N.J.       |           | Approx. 10.65                                                                                   |            |             |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
| MATERIAL SYMBOL     | Elev (ft) | Sample Description                                                                              | Cong (min) | Depth Scale | Sample Data |         |                   |                      |                                   | Remarks<br>(Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc )                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |    |
|                     |           |                                                                                                 |            |             | Number      | Type    | Recoy (in)        | Penetr resist BU/6in | N-Value (Blows/ft)<br>10 20 30 40 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           | Dark gray very soft CLAY, some shells, (very plastic) [CH/OH] [RIVER MUD]                       |            | 45          |             |         |                   |                      |                                   | <p>Drive 5" casing to 45'</p> <p>Drill to 45'</p> <p>Achieving return on drilling fluid</p> <p>Drilling fluid returning brown 40' to 43'</p> <p>Rig chatter 43' to 45'</p> <p>Casing sinking at 49', soft soils</p> <p><math>q_u = 0.05</math> tsf</p> <p><math>q_u = 0.07</math> tsf</p> <p>Drill to 50'</p> <p>Rig broke down 2:00 PM at 46'</p> <p>Need new rig for tomorrow</p> <p>WGI taking rig back to shop</p> <p>WGI off site 3:00 PM</p> <p>WGI on site 10/9/2013 at 9:00 AM</p> <p>Drill to 50'</p> <p>Take S-14</p> <p>Spoon refusal at 50'-5"</p> |    |
|                     |           | Dark gray soft to firm CLAY, trace shells, trace fine gravel, organic smell [CH/OH] [RIVER MUD] |            | 46          | S-12A       | SS      | 24                | 2                    | 5                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            |             | 47          | S-12B   |                   |                      | 3                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            |             | 48          | S-13A   | SS                | 24                   | 8                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 26 |
|                     | -37.9     | Grayish brown silty medium SAND, trace clay, trace fine gravel [SM]                             |            | 49          | S-13B       |         |                   | 14                   |                                   | <p>Drill to 50'</p> <p>Rig broke down 2:00 PM at 46'</p> <p>Need new rig for tomorrow</p> <p>WGI taking rig back to shop</p> <p>WGI off site 3:00 PM</p> <p>WGI on site 10/9/2013 at 9:00 AM</p> <p>Drill to 50'</p> <p>Take S-14</p> <p>Spoon refusal at 50'-5"</p>                                                                                                                                                                                                                                                                                           |    |
|                     | -39.8     | Gray brown silty SAND, some gravel                                                              |            | 50          | S-14        | SS      | 5                 | 100/5"               | 100/5"                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           | Possible DECOMPOSED ROCK                                                                        |            | 51          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     | -41.4     |                                                                                                 |            | 52          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           | White/pink SANDSTONE [DECOMPOSED/WEATHERED ROCK]                                                | 1:00       | 53          | RUN 1       | NX CORE | REC=6"/36" = 17%  | RQD=5"/36" = 14%     |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 | 1:00       | 54          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 | 1:00       | 55          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 | 2:00       | 56          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 | 3:00       | 57          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 | 2:00       | 58          | RUN 2       | NX CORE | REC=48"/60" = 80% | RQD=41"/60" = 68%    |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           | White/pink SANDSTONE [ROCK]                                                                     |            | 59          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     | -49.4     | End of boring at 60'                                                                            |            | 60          |             |         |                   |                      |                                   | <p>Drill to 55'</p> <p>Hard drilling 50' to 52'</p> <p>Bit refusal at 52'</p> <p>Set up core barrel and 3" casing</p> <p>Start RUN 1 at 11:49 AM</p> <p>Stop RUN 1 at 11:52 AM at 55' due to fluid return loss</p> <p>Clear core barrel</p> <p>Drill 3" casing to 55'</p> <p>Start RUN 2 at 12:28 PM</p> <p>Stop RUN 2 at 12:41 PM</p> <p>Break down rig by 2:00 PM</p> <p>Moved to B-5</p>                                                                                                                                                                    |    |
|                     |           |                                                                                                 |            | 61          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 62          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 63          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 64          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 65          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 66          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 67          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 68          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 69          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|                     |           |                                                                                                 |            | 70          |             |         |                   |                      |                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |

# **MCLAREN BORING 2015**

Fax.: (845) 365-9713

# CMI

**Subsurface  
Investigations, Inc.**

375 Western Highway Tappan, New York 10983

BORING NO.

## Boring 2

SHEET 1 of 2

## BORING LOG

PROJECT: WATER BORINGS

PROJECT NO.:

LOCATION: HOBOKEN, NEW JERSEY

START DATE:

CLIENT:

FINISH DATE:

INSPECTOR:

DRILLER: NICHOLAS MORETTI HELPER: JORGE DINNIS

RIG: CME 75

[illegible]

### TOOLS & EQUIPMENT USED

CASING SIZE

## CASING HAMMER

## HAMMER FALL - CASING

CODE LABEL USED

## GROUND WATER DATA

DATE \_\_\_\_\_

Fax.: (845) 365-9713

BORING NO. 2 Boring 1

# CMI

Subsurface  
Investigations, Inc.

375 Western Highway Tappan, New York 10983

SHEET 1 of 2

## BORING LOG

PROJECT: WATER BORINGS

PROJECT NO.:

LOCATION: HOBOKEN, NEW JERSEY

START DATE:

CLIENT:

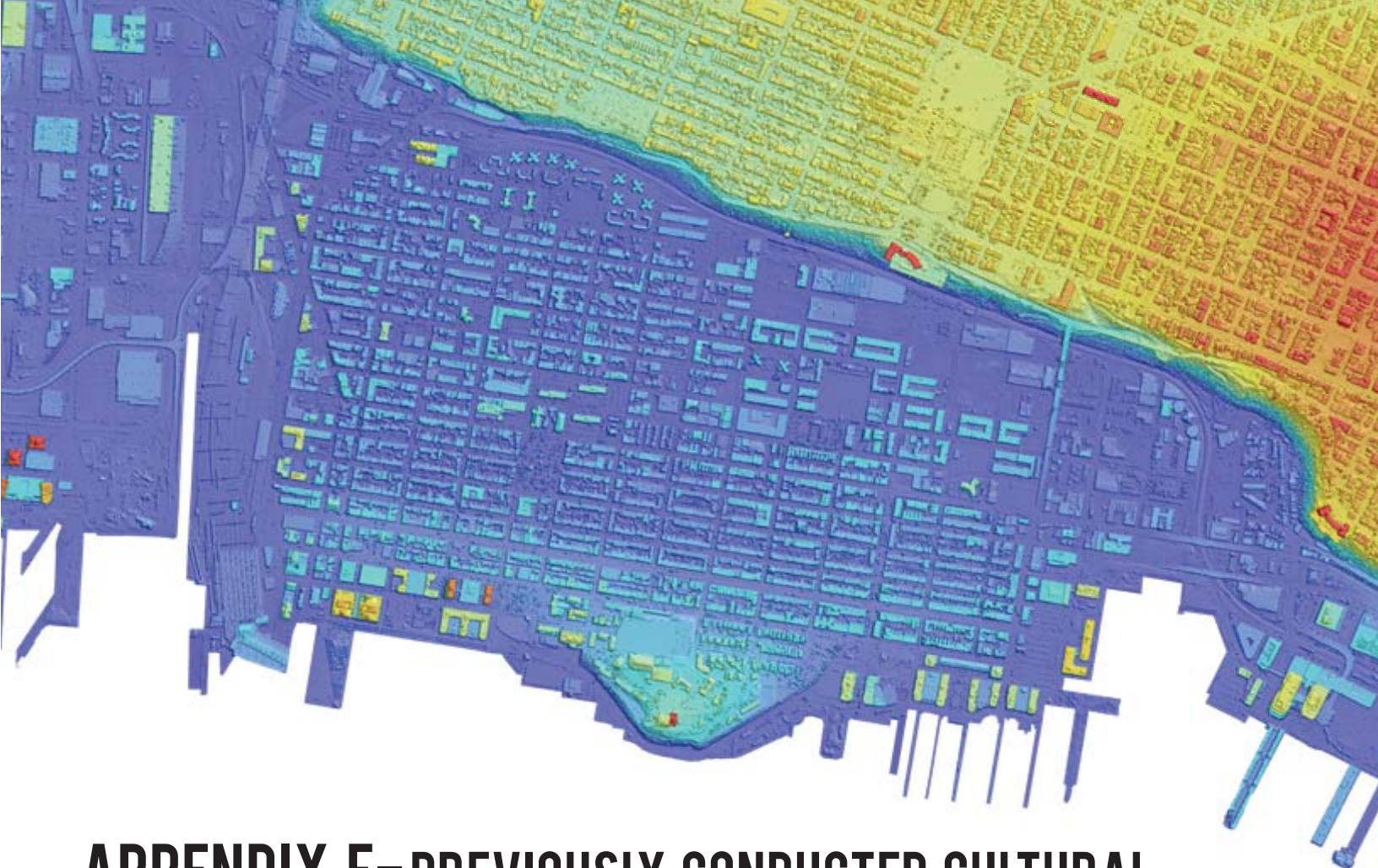
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INSPECTOR:

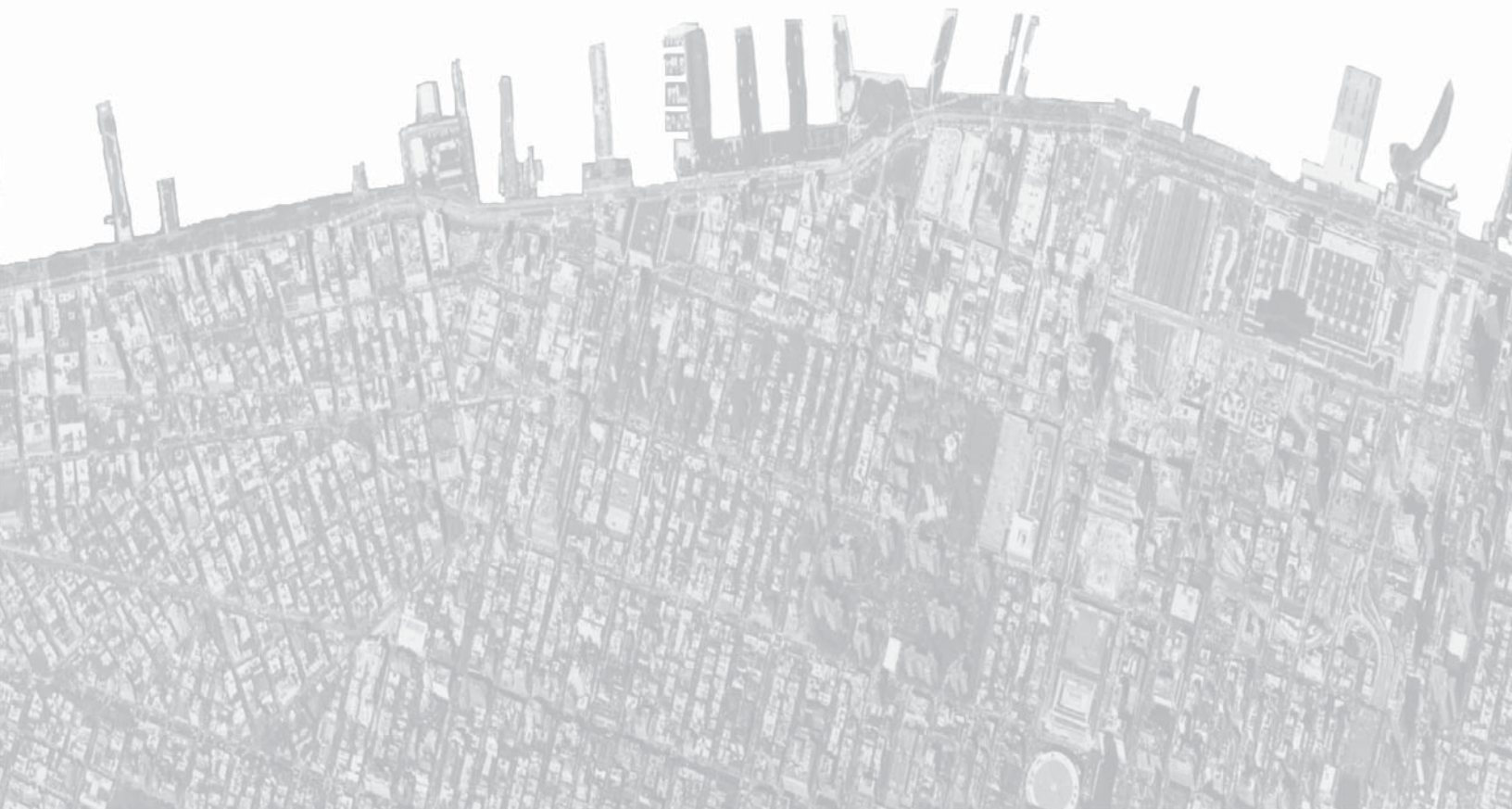
DRILLER: NICHOLAS MORETTI HELPER: JORGE DINNIS

RIG: CME 75

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## **APPENDIX E—PREVIOUSLY CONDUCTED CULTURAL RESOURCES STUDIES WITHIN THE STUDY AREA**



**APPENDIX E**  
**PREVIOUSLY CONDUCTED CULTURAL RESOURCES STUDIES WITHIN THE STUDY AREA**

| TITLE                                                                                                                                                                                                                | AUTHOR                                        | DATE         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|--------------|
| Erie Lackawanna Terminal Historic Structures Report, Hoboken, NJ                                                                                                                                                     | The Community Development Agency              | Not provided |
| Archaeological Monitoring North Hudson Sewerage Authority Grand Street Combined Sewer Rehabilitation, City of Hoboken, Hudson County, NJ                                                                             | RGA                                           | 2015         |
| Stage IA Cultural Resources Survey, Washington Street Water and Main Replacement and Complete Street Redesign, City of Hoboken, Hudson County, NJ                                                                    | RGA                                           | 2015         |
| Phase IA Archaeological Survey Riverfront Hotel and Post Office Renovation Hoboken (Frank Sinatra) Post Office, 89 River Street, City of Hoboken, Hudson County, New Jersey                                          | Hunter Research                               | 2013         |
| Archaeological Monitoring, North Hudson Sewerage Authority, H1 Screening and Wet Weather Pump Station, City of Hoboken, Hudson County, NJ                                                                            | RGA                                           | 2012         |
| Inspection and Evaluation Services for Hoboken Terminal, Immigrant Station--Pullman Building                                                                                                                         | Gannett Fleming                               | 2011         |
| THE Project Documentary Analysis for Areas of Archaeological Sensitivity, C10 Hudson River Tunnels, City of Hoboken, Hudson County, New Jersey and Manhattan Borough, New York County, New York                      | THE Partnership                               | 2010         |
| THE Project, Archaeological Field Screening Report, C8 Palisades Tunnels, Hoboken Fan Plant/Construction Access Shaft Site                                                                                           | THE Partnership                               | 2010         |
| Trans-Hudson Express Tunnel Project, C-08 Palisades Tunnels, Hoboken Fan Plant/Construction Access Shaft Site, Archaeological Field Testing Report                                                                   | Michael Gall and Michael Young                | 2010         |
| Archaeological Overview Study Texas Eastern Transmission, LP, New Jersey-New York Expansion Project, Linden, Bayonne, Jersey City, Hanover, and Mahwah, New Jersey                                                   | PAL                                           | 2010         |
| Historic Architectural/Industrial Properties Overview and Identification Survey Texas Eastern Transmission, LP, New Jersey-New York Expansion Project, Linden, Bayonne, Jersey City, Hanover, and Mahwah, New Jersey | PAL                                           | 2010         |
| Stage IA Cultural Resources Survey, North Hudson Sewerage Authority, H1 Screening and Wet Weather Pump Station, City of Hoboken, Hudson County, NJ                                                                   | RGA                                           | 2009         |
| THE Project Documentary Analysis Report Hoboken Fan Plant/Construction Access Shaft Site, C8 Palisades Tunnels, City of Hoboken, Hudson County, New Jersey                                                           | THE Partnership                               | 2009         |
| Weehawken, New Jersey: The Evolution of a Transportation Nexus                                                                                                                                                       | ARCH <sup>2</sup> . Inc.                      | 2008         |
| Phase IA Archaeological Survey Report, Access to the Region's Core Environmental Impact Statement                                                                                                                    | Transit Link Consultants                      | 2008         |
| Access to the Region's Core Final Environmental Impact Statement                                                                                                                                                     | Federal Transit Administration and NJ Transit | 2008         |
| Phase IA Archaeological Survey Report, Access to the Region's Core Environmental Impact Statement, Addendum Report                                                                                                   | Transit Link Consultants                      | 2008         |

| TITLE                                                                                                                                                                                                                               | AUTHOR                                        | DATE |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------|
| Cultural Resources Identification and Effects Report for the 14th Street Viaduct                                                                                                                                                    | Patrick Harshbarger                           | 2007 |
| Waterfront Development Permit Application, Compliance Statement for Relocation of Ferry from Pier 3 to 4 and Improvements to Pier 1, Hoboken, New Jersey                                                                            | Potomac-Hudson Environmental, Inc.            | 2007 |
| Geomorphology/Archaeological Borings and GIS Model of the Submerged Paleoenvironment in the New York/New Jersey Harbor and Bight in Connection with the New York and New Jersey Navigation Project, Port of New York and New Jersey | GRA                                           | 2007 |
| Historic American Buildings Survey, Maxwell House Complex, 1101-1125 Hudson Street, City of Hoboken, Hudson County, New Jersey                                                                                                      | RGA                                           | 2006 |
| Archaeological Monitoring of Demolition and Construction Activities, Maxwell House Site, City of Hoboken, Hudson County, NJ                                                                                                         | RGA                                           | 2006 |
| Stage IA Cultural Resources Survey, North Hudson Sewerage Authority, Collections System, Combined Sewer Rehabilitation, Wood Sewers, City of Hoboken, Hudson County, NJ                                                             | RGA                                           | 2006 |
| Archaeological Monitoring/Stage IB Archaeological Survey, North Hudson Sewerage Authority, Solids/Floatables Removal Project Package 1 (H-6/H-7 Consolidation Conduit) City of Hoboken, Hudson County, NJ                           | RGA                                           | 2006 |
| HBLR MOS-2 Jersey Avenue Viaduct, Phase IB Technical Report                                                                                                                                                                         | Joan Geismar                                  | 2006 |
| Historic Architectural Resources Background Study and Effects, Access to the Region's Core Environmental Impact Statement                                                                                                           | Transit Link Consultants                      | 2006 |
| Historic Architectural Sites Survey for the AT&T Wireless, Inc. Site #901-005-309A, 251 Tenth Street, Block 171, Lot 20, City of Hoboken, Hudson County, New Jersey                                                                 | ARCH <sup>2</sup> Inc.                        | 2005 |
| Field to Factory: The Story of the Maxwell House Coffee Plant                                                                                                                                                                       | RGA                                           | 2005 |
| Historic Background and Development of the Maxwell House Site, City of Hoboken, Hudson County, New Jersey                                                                                                                           | RGA                                           | 2005 |
| FCC Communications Antenna Collocation Project, Holland Tunnel, 629 Grove Street, Jersey City, Hudson County, New Jersey                                                                                                            | Archaeological & Historical Consultants, Inc. | 2004 |
| Cultural Resources Survey for the AT&T Wireless, Inc. Site #901-005-335, 801-803 Adams Street (A.K.A. 410 8th Street), City of Hoboken, Hudson County, New Jersey                                                                   | ARCH <sup>2</sup> Inc.                        | 2004 |
| Proposed Collocation Project, Section 106 Field Assessment, Holland Tunnel, 580 Luis Munoz Marin Blvd, Jersey City, Hudson County, New Jersey                                                                                       | Archaeological & Historical Consultants, Inc. | 2004 |
| Cultural Resources Survey for the AT&T Wireless, Inc. Site #901-005-372, 1215-1219 Willow Avenue, City of Hoboken, Hudson County, New Jersey                                                                                        | ARCH <sup>2</sup> Inc.                        | 2004 |
| Stage IA Cultural Resources Survey, North Hudson Sewerage Authority, System-Wide Combined Sewer Overflow Improvement Program, Cities of Hoboken and Union County and Township of Weehawken, Hudson County, NJ                       | RGA                                           | 2004 |

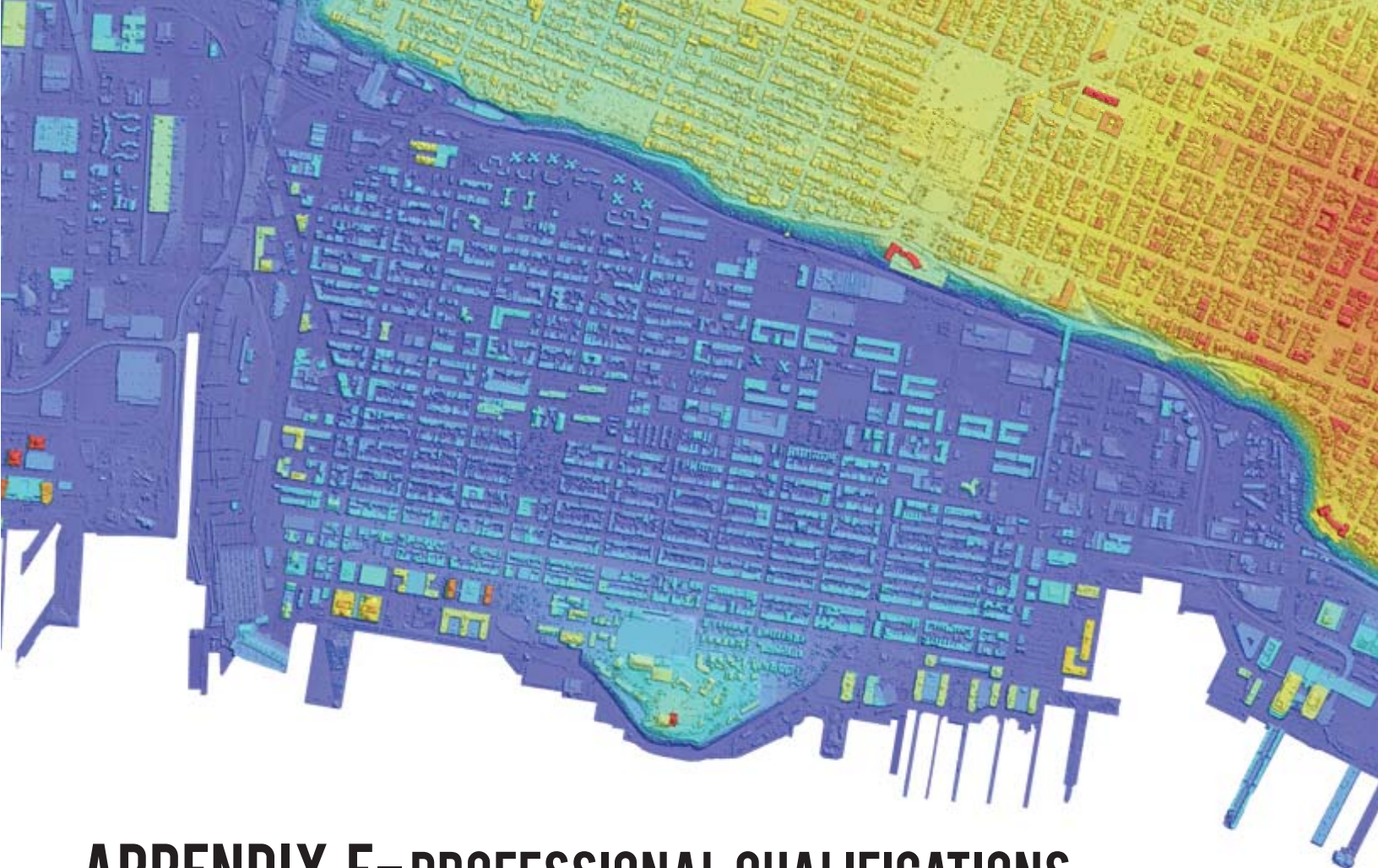
| TITLE                                                                                                                                                                                                                    | AUTHOR                                        | DATE |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|------|
| Stage IA Cultural Resources Survey, North Hudson Sewerage Authority, Solids/Floatables Removal Project Package 3A (H-3/H-4/HSI S/F Facility and HSI Consolidation Conduit) City of Hoboken, Hudson County, NJ            | RGA                                           | 2004 |
| HBLR MOS-1 Long Slip, Jersey City-Hoboken, Hudson County, New Jersey, Field Testing and Data Recovery Report                                                                                                             | Joan Geismar                                  | 2004 |
| HBLR MOS-2, 2nd Street Station, Hoboken, Hudson County, New Jersey, Memo Report on Archaeological Field Testing                                                                                                          | Joan Geismar                                  | 2004 |
| Cultural Resources Survey for the Verizon Wireless Stevens Institute of Technology Site #03VR001, Wesley J. Howe Building, Stevens Institute of Technology, Block 235, Lot 1, City of Hoboken, Hudson County, New Jersey | ARCH <sup>2</sup> . Inc.                      | 2003 |
| Cultural Resources Survey for the AT&T Wireless Jefferson Street Site #898-005-365, 1017-1031 Jefferson Street, Block 100, Lot 1, City of Hoboken, Hudson County, New Jersey                                             | ARCH <sup>2</sup> . Inc.                      | 2003 |
| FCC Communications Antenna Collocation Project, 801-823 Adams Street, Hoboken, Hudson County, New Jersey                                                                                                                 | Archaeological & Historical Consultants, Inc. | 2003 |
| Phase II Cultural Resource Investigation Commerce Bank, N.A. Proposed Branch 45-47 Newark Street, City of Hoboken, Hudson County, New Jersey                                                                             | Cultural Resource Consulting Group            | 2003 |
| FCC Communications Antenna Collocation Project, Riverview Park, 300-326 Adams Street, Hoboken, Hudson County, New Jersey                                                                                                 | Archaeological & Historical Consultants, Inc. | 2003 |
| National Historic Preservation Act, Section 106, Sprint PCS, Site No. NY54XC080, 78 Jefferson Street, City of Hoboken, Hudson County, New Jersey                                                                         | Richard Grubb & Associates, Inc. (RGA)        | 2003 |
| Cultural Resource Investigation Maxwell House Site, City of Hoboken, Hudson County, New Jersey                                                                                                                           | RGA                                           | 2003 |
| Cultural Resources Survey for the AT&T Wireless G27C Cell Site, 59 Thirteenth Street, Block 244, Lot 4.1, City of Hoboken, Hudson County, New Jersey                                                                     | ARCH <sup>2</sup> . Inc.                      | 2002 |
| Determination of Effect, Nextel Site No. NJ-2384, 201-215 Willow Avenue, Hoboken, Hudson County, New Jersey                                                                                                              | IVI Environmental, Inc.                       | 2002 |
| Cultural Resources Survey for the AT&T Wireless #901005306 Site, 110 First Street, Block 200, Lot 1, City of Hoboken, Hudson County, New Jersey                                                                          | ARCH <sup>2</sup> . Inc.                      | 2002 |
| Cultural Resources Survey for the AT&T Wireless #901-005-334, 122 Clinton Street, Block 32, Lot 19, City of Hoboken, Hudson County, New Jersey                                                                           | ARCH <sup>2</sup> . Inc.                      | 2002 |
| Cultural Resources Survey for the AT&T Wireless #901-005-339, 423 Jackson Street, Block 57, Lot 12, City of Hoboken, Hudson County, New Jersey                                                                           | ARCH <sup>2</sup> . Inc.                      | 2002 |
| Stage IB Cultural Resource Survey, CSO W-5, Planning Area III, North Hudson Sewerage Authority, Long Term Solids & Floatables                                                                                            | RGA                                           | 2002 |

| TITLE                                                                                                                                                                                                                              | AUTHOR                                           | DATE |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|------|
| Plan, Hoboken, Weehawken, Union City, West New York, Guttenberg, and North Bergen, Hudson County, NJ                                                                                                                               |                                                  |      |
| Stage IB Cultural Resource Survey, CSO H-6, Planning Area III, North Hudson Sewerage Authority, Long Term Solids & Floatables Plan, Hoboken, Weehawken, Union City, West New York, Guttenberg, and North Bergen, Hudson County, NJ | RGA                                              | 2002 |
| Environmental Assessment, West End Substation and Crew Quarters                                                                                                                                                                    | Joan Geismar and Lynn Drobbin & Associates       | 2002 |
| Hoboken Terminal Façade Condition Assessment Report                                                                                                                                                                                | Beyer Blinder Belle Architects and Planners, LLP | 2002 |
| Historic American Engineering Record, Cooper Hewitt/General Electric Mercury Vapor Lamp Factory, Hoboken, New Jersey                                                                                                               | Berger                                           | 2001 |
| Cultural Resources Assessment Weehawken Engineering & Mfg. Co., 19 Baldwin Avenue, Block 34.01 Lot 3, Township of Weehawken, Hudson County, New Jersey                                                                             | Greenhouse Consultants, Inc.                     | 2001 |
| Bergen Tunnels, NJ Transit Morristown Line                                                                                                                                                                                         | Frances Alexander                                | 2001 |
| Pennsylvania Railroad, Weehawken NJ Vent Shafts                                                                                                                                                                                    | Paul McGinley                                    | 2000 |
| A Geomorphological and Archaeological Study in Connection with the New York and New Jersey Harbor Navigation Study, Upper and Lower Bay, Port of New York and New Jersey                                                           | Geoarcheology Research Associates (GRA)          | 2000 |
| Phase IA Cultural Resource Survey, The Grand Street Mercury Site, Hoboken, Hudson County, New Jersey                                                                                                                               | Louis Berger & Associates, Inc. (Berger)         | 1999 |
| Interior Finishes Analysis For: Main Waiting Room, Hoboken Lackawanna Terminal, Hoboken, New Jersey                                                                                                                                | Beyer Blinder Belle Architects and Planners, LLP | 1998 |
| Stage IB Cultural Resources Investigation/Paleoenvironmental Analysis, Combined Sewer Overflow Planning Study, Planning Areas IA and III, North Bergen Township, Hudson County, New Jersey                                         | RGA                                              | 1998 |
| Documentary Study of Proposed New Boulevard and Long Slip Alignments, Hudson Bergen Light Rail Transit System (HBLRTS), Jersey City-Hoboken, Hudson County, New Jersey                                                             | Joan Geismar                                     | 1998 |
| Historic Architectural Resources Background Study and Effects Assessment, NJ Transit Hudson-Bergen Light Rail Transit System West Side Alignment                                                                                   | Lynn Drobbin & Associates                        | 1998 |
| Phase II Historic Corridor Analysis Morristown Line and Montclair Branch, Morris and Essex Lines                                                                                                                                   | Lynn Drobbin & Associates                        | 1998 |
| Monmouth & Coles Streets Improvement Study, Assessment of Cultural Resources                                                                                                                                                       | Architectural Preservation Consultants           | 1997 |
| Photographic Supplement to the Hoboken Terminal and Yard Preservation Plan                                                                                                                                                         | Beyer Blinder Belle                              | 1997 |

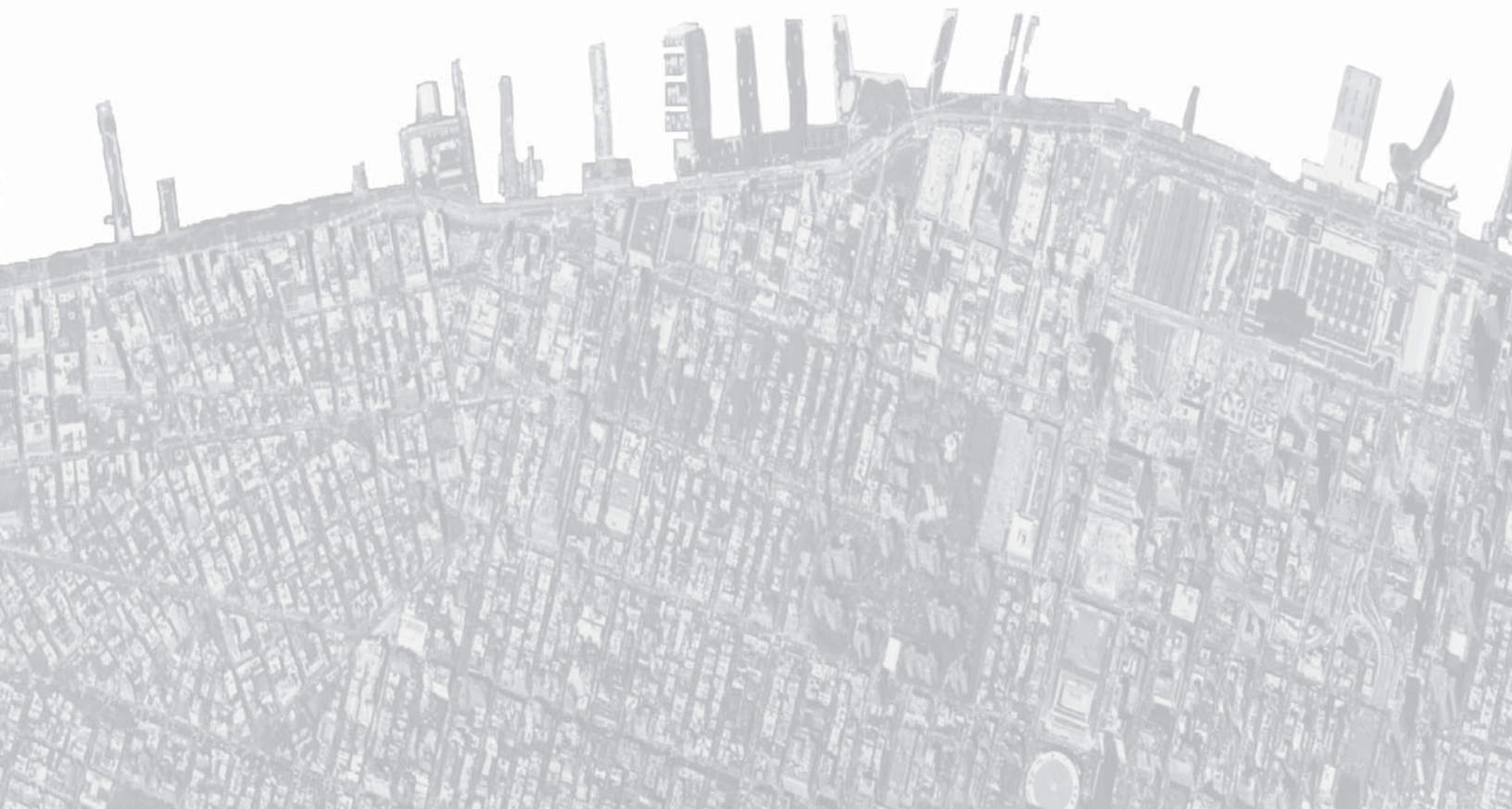
| TITLE                                                                                                                                                                         | AUTHOR                                     | DATE |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|------|
| Archaeological Assessment of the Long Slip Canal, NJ Transit Long Slip Habitat Creation Project, Hoboken and Jersey City, Hudson County, New Jersey                           | Dolan Research, Inc.                       | 1997 |
| Request for a Determination of Eligibility for Long Slip, NJ Transit Long Slip Habitat Creation Project, Hoboken and Jersey City, Hudson County, New Jersey                   | Lynn Drobbin & Associates                  | 1997 |
| Phase I Historic Corridor Analysis Morristown Line and Montclair Branch, Morris and Essex Lines                                                                               | Lynn Drobbin & Associates                  | 1997 |
| Stage IA Cultural Resources Survey, Combined Sewer Overflow Planning Study, Planning Area III, North Bergen, Guttenberg, West New York, Weehawken, Hoboken, Hudson County, NJ | RGA                                        | 1996 |
| Report on Historical Considerations Selected Amtrak Sites New York and New Jersey                                                                                             | De Leuw, Cather & Company                  | 1996 |
| Technical Report Bayonne Extension to the Vince Lombardi Park-Ride Archaeological Testing for the Hudson-Bergen Light Rail System                                             | Joan Geismar                               | 1995 |
| Request for a Determination of Effect, NJ Transit Hudson-Bergen Light Rail Transit System, Hudson and Bergen Counties, New Jersey                                             | Lynn Drobbin & Associates                  | 1995 |
| Final Environmental Impact Statement Historic Architectural Resources and Background Study, NJ Transit Hudson River Waterfront Corridor Light Rail Transit                    | Lynn Drobbin & Associates                  | 1995 |
| Hoboken Terminal Investigation, Mail Pier Inspection and Evaluation                                                                                                           | Mueser Rutledge Consulting Engineers       | 1994 |
| Hoboken Terminal Investigation, Project 2--Superstructure Field Investigation: Inspection Summary and Compilation of Data                                                     | Mueser Rutledge Consulting Engineers       | 1994 |
| Hoboken Terminal Investigation, Project 1--Superstructure Field Investigation: Inspection Summary and Compilation of Data                                                     | Mueser Rutledge Consulting Engineers       | 1994 |
| Hoboken North Wall Interior Plaster Finish Alternatives Analysis, New Jersey Transit Hoboken Terminal, Hoboken, New Jersey                                                    | Ford Farewell Mills and Gatsch, Architects | 1994 |
| Hoboken Terminal Investigation, North Wall Piling and First Floor Deck Substructure                                                                                           | Mueser Rutledge Consulting Engineers       | 1993 |
| Hoboken Terminal Core Passenger Facilities Improvement Project, Hoboken, New Jersey                                                                                           | TAMS                                       | 1993 |
| Hudson Waterfront Transit Improvements Hoboken Terminal Site Issues & Design Recommendations                                                                                  | Wallace Roberts & Todd                     | 1992 |
| Hudson River Waterfront Transportation Alternatives Analysis/Draft Environmental Impact Statement, Results Report: Cultural Resources and Ecology                             | Parson Brinckerhoff Quade & Douglas, Inc.  | 1992 |
| Archaeological Resources Technical Backup Report, NJ Transit Hudson River Waterfront Transportation Project AA/DEIS                                                           | Parson Brinckerhoff                        | 1991 |

| TITLE                                                                                                                                                                                       | AUTHOR                                   | DATE |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------|
|                                                                                                                                                                                             | Quade & Douglas, Inc.                    |      |
| Conditions Survey and Cost Estimate for Restoration and Rehabilitation of the Erie-Lackawanna Railroad and Ferry Terminal, Hoboken, New Jersey                                              | Jan Hird Pokorny Architects & Planners   | 1990 |
| Rail Transportation Department Office of Ferry Transportation, The Pullman & Immigrant Building, Hoboken, New Jersey, Final Condition Survey Report                                         | Port Authority of NY & NJ                | 1990 |
| Supplementary Assessment of Cultural Resources in the Lincoln Harbor Development Site, Township of Weehawken and City of Hoboken, Hudson County, New Jersey                                 | Raber Associates                         | 1988 |
| Historic Site Analysis for Waterfront Development Permit, Grant Marina, Hudson Street, Hoboken, New Jersey                                                                                  | The Rothe Partnership, P.C.              | 1988 |
| Assessment of Cultural Resources in the Lincoln Harbor Development Site, Township of Weehawken and City of Hoboken, Hudson County, New Jersey                                               | Raber Associates                         | 1986 |
| Historical, Architectural, and Photographic Documentation, The Swift & Co./Sioux Quality Packing Co., Inc. Complex, Jersey City, Hudson County, New Jersey                                  | Berger                                   | 1984 |
| Cultural Resource Investigations Hoboken-North Bergen, New Jersey Reach, New York Harbor Collection and Removal of Drift Project                                                            | Raber Associates                         | 1984 |
| Inspection of Ferry Bridges at Hoboken Ferry Terminal                                                                                                                                       | Leo W. Geismar                           | 1983 |
| Preliminary Case Report: Columbian Tower Housing for the Elderly and Handicapped, Hoboken, New Jersey                                                                                       | Heritage Studies                         | 1982 |
| Army Corps of Engineers New York District New York Harbor Collection and Removal Drift Project, Cultural Resources Reconnaissance: Hoboken to North Bergen Reach                            | Sydne Marshall                           | 1981 |
| Stage IB Cultural Resource Survey for the Hudson County Sewerage Facilities at the Jersey City East Treatment Plant, Jersey City, Hudson County, NJ                                         | Historic Conservation and Interpretation | 1980 |
| Stage IB Cultural Resource Survey of the Hudson Sewerage Authority's Proposed Sewerage Treatment Facilities at the Jersey City East Treatment Plant, Jersey City, Hudson County, New Jersey | Historic Conservation and Interpretation | 1980 |
| A Cultural Resource Survey for the Paterson Plank Road-Grade Crossing Elimination Project, Jersey City and Hoboken, New Jersey                                                              | Ihor Sypko                               | 1980 |
| Hudson River Route Feasibility and Locational Study Environmental Impact Statement Technical Report No. 8 Cultural Resources                                                                | Historic Sites Research                  | 1980 |
| Stage IB Cultural Resource Survey for the Hudson County Sewerage Authority, 201 Wastewater Facilities Plan, District 1, Jersey City, North Bergen, Secaucus, and Kearny                     | Historic Conservation and Interpretation | 1979 |
| Stage IB Cultural Resource Survey for the Hudson Sewerage Authority, 201 Wastewater Facility Plan--District I, Jersey City, North Bergen, Secaucus, and Kearny, Hudson County, New Jersey   | Historic Conservation and Interpretation | 1979 |

| TITLE                                                                                                                                                                                                                              | AUTHOR                                                                  | DATE |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------|------|
| Cultural Resources Survey of the Hudson County Utilities Authority Facilities Plan--Area III from Hoboken to Guttenberg, Hudson County, NJ                                                                                         | Archaeological Research Center                                          | 1979 |
| Stage IA Cultural Resource Survey for the Hudson Sewerage Authority, 201 Wastewater Facility Plan--District II, Bayonne, Hudson County, New Jersey                                                                                 | Historic Conservation and Interpretation                                | 1978 |
| An Archaeological Survey for the Erie-Lackawanna Improvements Project                                                                                                                                                              | CRMS                                                                    | 1978 |
| Environmental Assessment, Rehabilitation and Economic Revitalization of the Hoboken Erie Lackawanna Terminal                                                                                                                       | Not indicated                                                           | 1976 |
| Survey for Prehistoric and Historic Archaeological Sites and Historic Sites and Structures, Route 169 and Route 440 from the Bayonne Bridge in Bayonne to the Vicinity of Bayview Avenue in Jersey City, Hudson County, New Jersey | Federal Highway Administration, New Jersey Department of Transportation | 1976 |



## APPENDIX F-PROFESSIONAL QUALIFICATIONS





## Zachary Davis RPA

### Senior Archaeologist

Zach Davis is a senior archaeologist and project manager with over 20 years of experience in the field. He is practiced in National Environmental Policy Act (NEPA) and State Environmental Quality Review Act (SEQRA) compliance, as well as Phase IA Archaeological Assessments, Phase IB Archaeological Surveys, and Phase II Archaeological Site Evaluations. Zach has been project manager for over 100 projects in New York, New Jersey, and other Mid-Atlantic States.

#### EDUCATION:

PhD (ABD) Interdepartmental Doctoral Program in Anthropology, SUNY Stony Brook

MA, Anthropology, SUNY Stony Brook, 2000

MA, Archaeology, University of London, 1994

BA, Archaeological Studies, Boston University, 1993

#### REGISTRATIONS / TRAINING:

Registered Professional Archaeologist

An Advanced Workshop for National Register Nomination Preparers, National Park Service and New Jersey Historic Trust (2012)

Cultural Resources Best Practices Workshop, 7-Hour Training Program, New Jersey Historic Preservation Office (2006)

OSHA 40-hour Hazardous Waste Operations Training; Annual Refreshers

Trenching and Excavation Safety – OSHA Construction Industry Standards, Subpart P (29 CFR 2926.650-652) (2009)

#### YEARS OF EXPERIENCE:

Dewberry: 1

Prior: 22

#### AFFILIATIONS:

Register of Professional Archaeologists

Society for American Archaeology

Millburn Short Hills Historic Society

New York Archaeological Council

#### CHRONOLOGY:

2014-2015: HDR, Inc.

2001-2014: The Louis Berger Group

## SELECTED EXPERIENCE

### **Rebuild By Design Meadowlands, New Jersey Department of Environmental Protection (NJDEP), Bergen County, NJ. Senior Archaeologist,**

as a subconsultant, for the NEPA Environmental Impact Statement (EIS) for this project that conceptually consists of a large natural reserve along the Hackensack River, which would connect and expand marshland. The design aims to use a system of green and gray infrastructure, to protect against ocean surges and rain event flooding.

**Environmental Assessment Field Contractor for Superstorm Sandy Community Development Block Grant-Disaster Recovery (CDBG-DR), New Jersey Department of Environmental Protection, New Jersey. Cultural Resources Lead** for NEPA Environmental Assessments and compliance with Section 106 of the NHPA, in support of CDBG-DR projects funded by US Housing and Urban Development (HUD). Work involves desktop assessments (review of aerials, historic maps, and NJDEP GIS files), field reconnaissance, and environmental documentation, as well as extensive coordination with local, state, and federal agencies.

**Maritime Transportation System Planning and Project Management Services, New Jersey Department of Transportation, Statewide, NJ. Cultural Resources Specialist** for task order contract to support the NJDOT's Office of Maritime Resources with the State Dredging Program. Responsible for coordinating environmental and historic preservation compliance for various task orders.

**Maritime Archaeology, Route 35 Steel Sheet Pile Dune Restoration Project, New Jersey Department of Environmental Protection (NJDEP), Mantoloking Sea Wall, Brick Township, NJ. Senior Archaeologist** responsible for Dewberry's services to conduct maritime archaeological recordation and damage assessment for the cultural materials (i.e., shipwreck remains) encountered during the installation of steel sheet piles.

**Rebuild By Design Hudson River: Resist-Delay-Store-Discharge, NJ TRANSIT and New Jersey Department of Environmental Protection**

**Zachary Davis** RPA  
Senior Archaeologist

**(NJDEP), Hudson County, NJ. Senior Archaeologist** for the Feasibility Study and National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) for a \$230-million comprehensive urban water strategy conceived to protect the Hoboken waterfront, as well as parts of Weehawken and Jersey City. The project incorporates hard and nature-based infrastructure measures to address surge protection, coastal defense, and systemic drainage issues.

**Build It Back Program, New York City Economic Development Corporation and Mayor's Office of Housing Recovery Operations, New York, NY. Historic Preservation Lead** for the cultural resources review of residential properties damaged as a result of Hurricane Sandy. Involves reviewing properties for historic preservation issues, both architectural (above ground) and archaeological (below ground), under the May 2013 Programmatic Agreement executed between the Federal Emergency Management Agency, the New York State Historic Preservation Office, and the New York City Landmarks Preservation Commission for compliance with the National Environmental Policy Act (NEPA) and US Department of Housing and Urban Development (HUD) regulations. Other tasks include consultation with New York State and City review agencies and developing mitigation treatment plans for historic properties adversely affected by the recovery project.

**Marshes Mitigation Banking Pilot, New York City Economic Development Corporation, Staten Island, Richmond County, NY (9/2013-5/2014). Cultural Resources Manager.** Coordinated the Phase IA Cultural Resources assessment for the creation of a wetland mitigation bank on Staten Island's West Shore and prepared consultation documents for New York State Office of Parks, Recreation and Historic Preservation and New York City Landmarks Preservation Commission.

**Freedom Pier Utility Project, City of Gloucester City, Camden County, New Jersey (10/2014-2/2015). Project Archaeologist.** Prepared Cultural Resource Management Protocol to be implemented during the installation of various utilities crossing through the extent of the multicomponent Coast Guard Archaeological Site (28-Ca-94).

**Lloyd Avenue Surface Anode Bed, Section 106 Consultation, Columbia Pipeline Group, Caln Township, Chester County, PA (11/2014).** Prepared Pennsylvania Historical and Museum Commission project review form for the initiation of Section 106 consultation for an upgrade to an existing gas pipeline in eastern Pennsylvania. Prepared consultation letter on behalf of client and recommended that the proposed project will have no effect to historic properties; PHMC concurred with recommendations.

**Priority Repair of Seawall, New York City Department of Parks and Recreation (NYCDPR) and New York City Department of Transportation**

**(NYCDOT), Henry Hudson Parkway, Southbound, West 89<sup>th</sup> to West 86<sup>th</sup> Street, New York County, NY (7/2014). Project Archaeologist.** Seawall stabilization project requiring an U.S. Army Corps of Engineer permit and involved preparation of historic resource documentation for review by New York City Landmarks Preservation Commission (LPC) and OPRHP. Provided historic mapping of the project area from before the construction of the Parkway through the mid-20th century and prepared consultation document for submittal to historic preservation review agencies. Project was advanced with a no adverse effect to historic properties determination and concurrence from OPRHP and LPC.

**Flood Mitigation and Resiliency, New York City Transit (NYCT), 207<sup>th</sup> Street Yard, 8<sup>th</sup> Avenue Line, Borough of Manhattan, New York County, NY (7/2014-11/2014). Project Archaeologist.** Prepared historic resource consultation correspondence for the proposed construction of flood mitigation measures at the 207th Street rail yard. Provided client with known historic property information relevant to the proposed project area and drafted correspondence for review by New York State Office of Parks, Recreation and Historic Preservation (OPRHP). Prepared additional research related to the historic cemetery present at 207<sup>th</sup> Street and secured OPRHP concurrence of no historic properties affected by the proposed project.

**Flood Mitigation and Resiliency, New York City Transit, 148<sup>th</sup> Street Yard, Lenox Avenue Line, Borough of Manhattan, NY (7/2014-9/2014). Project Archaeologist.** Prepared historic resource consultation correspondence for the proposed construction of flood mitigation measures at the 148<sup>th</sup> Street rail yard. Provided client with known historic property information relevant to the proposed project area, drafted correspondence for review by New York State Office of Parks, Recreation and Historic Preservation (OPRHP) and secured OPRHP concurrence of no historic properties affected by the proposed project.

**Phase I Archaeological Investigation, Access Control Alteration and Rehabilitation, New York Office of General Services and New York Army National Guard, Camp Smith Training Site, Cortlandt Manor, Westchester County, NY (10/2014 – 1/2015).** Supervised the preparation of the archaeological investigation for the proposed entrance improvements at Camp Smith. Field investigations revealed significant disturbance to the project area resulting from past utility installation and prior modifications to the alignment of the entrance to the Camp. Recommended that the project will have no effect to historic properties.

**Phase IA Documentary Study, Proposed Development 181 Avenue A, LLC/Steiner NYC, 181 Avenue A, Manhattan, NY (7/2013-9/2013). Project Manager.** Prepared archaeological documentary study in advance of proposed housing development in Manhattan's Lower East Side. Study focused on the potential for the project area to contain unanticipated human remains associated

with the Old St. Patrick's Cathedral cemetery at the site of the c. 1915 Mary Help of Christians Church. Use of historic maps georeferenced to the modern street grid demonstrated that all burials were located west of the proposed development project.

**Phase IA Cultural Resource Survey, Sterling Forest Resort, Town of Tuxedo, Orange County, New York (4/2014-5/2014). Principal Investigator.**

Assessed the potential of a proposed resort to be located within Sterling Forest to affect cultural resources. Preponderance of prehistoric sites located in close proximity to the proposed development and the project's setting in proximity to water sources suggested that undisturbed areas would require archaeological survey to determine the presence or absence of archaeological resources.

**Phase IA Cultural Resource Survey, New York State Thruway Interchange 15B, Town of Tuxedo, Orange County, New York (4/2014-5/2014). Principal Investigator.**

Assessed the potential of a proposed Thruway interchange to affect cultural resources at the western edge of Harriman State Park. Numerous prehistoric sites are known in close proximity to the Thruway and the proposed interchange's location on well-drained soils suggested that undisturbed areas would require archaeological survey to determine the presence or absence of archaeological resources.

**Abri Castanet, Sergeac (Perigord), France (6/1996-8/1996, 6/1997-8/1997, 6/1998-7/1998). Excavator.** Assisted with the long-term excavations of an early Upper Palaeolithic (Aurignacian) rockshelter in the southwest of France, containing evidence of osseous projectile points, personal adornments and cave wall engravings dating to 32,000 years ago.

**African Meeting House, Nantucket, Nantucket County, MA**

**(9/1993). Excavator.** Assisted with the excavation and interpretation of archaeological deposits surrounding this c. 1820 post and beam structure, the second constructed African Meeting House in America. Supervisor: Mary Beaudry, Boston University.

**Standing Committee on the Environment, NCHRP Project 25-25/Task 61 American Association of State Highway and Transportation Officials (AASHTO).**

Best Practices for Establishing and Maintaining and Statewide Cultural Resource GIS Databases for use by State DOTs (7/2009-9/2010). Principal investigator. Conducted a nationwide survey of 50 state DOTs to inventory the range of statewide cultural resource GIS databases already established by state DOTs for the purpose of identifying best practices for those state DOTs intending to develop their own statewide cultural resource GIS. The study developed questions for 24 state DOTs with a cultural resource GIS in place to determine similarities and identify best practices for future development of similar GIS databases. The study also prepared a sample GIS database structure based on the similarities exhibited amongst the GIS databases developed by the

24 state DOTs.

**ARCADIS/BBL, Phase I Archaeological Assessment, Alcan Aluminum Sheet and Plate Company Site, Town of Scriba, Oswego County, NY (6/2006-8/2007). Project Manager.** Phase IA archaeological assessment and Phase IB archaeological field survey under SEQRA for the Alcan Facility, located south of Lake Ontario, prior to mitigation of contaminated soils.

**Phase IA Archaeological Assessment, Blasland, Bouck and Lee, Inc., Niagara Mohawk, Hudson (Water Street) Site, City of Hudson, Columbia County, NY (3/2003-5/2003). Principal Investigator.** Archaeological assessment of late nineteenth-/early twentieth-century coal-to-gas generating facility located on the banks of the Hudson River. Involved research and analysis of past disturbances and potential for historic archaeological resources associated with the industrial use of the project area.

**Phase IA Archaeological Assessment, Remedial Options Pilot Study, Blasland, Bouck and Lee, Inc., Grasse River Study Area, Alcoa-Massena, Massena, St, Lawrence County, NY (3/2005-5/2005). Principal Investigator.** Archaeological assessment of early twentieth-century Alcoa fabricating, ingot, and extrusion and smelting plant under U.S. EPA jurisdiction as a Superfund Site. Research and analysis of past disturbances and assessment of potential for historic archaeological resources associated with industrial use of the project area.

**Boston University Archaeological Field School, Spencer-Peirce-Little Farm, Newbury, Essex County, MA (7/1992-8/1992). Excavator.** Boston University archaeological field school at a late seventeenth-century farmstead. Supervisor: Mary Beaudry, Boston University.

**Archaeological Monitoring, Bryant Park Corporation, Bryant Park Terrace, Manhattan, NY (2/2010-4/2010). Project Manager.** Coordinated the placement of deep-trench excavation for the identification of the foundation to the nineteenth-century Croton Reservoir distributing tank formerly located on the present location of the New York Public Library. Archaeological monitoring of the heavy machine excavation on the eastern end of Bryant Park failed to locate intact evidence of the reservoir foundation wall but identified potential locations for future exploratory excavations.

**Buckeye Perth Amboy Terminal Phase 2 Project, Buckeye Perth Amboy Terminal LLC, City of Perth Amboy, Middlesex County, NJ (5/2013-7/2013). Project Manager.** Coordinated the review of existing cultural resource information and survey of two historic properties located at the Perth Amboy Terminal facility.

**Zachary Davis** RPA  
Senior Archaeologist

**Calverton Naval Weapons Industrial Reserve, Calverton, Suffolk County, NY (7/1995-9/1995). Field supervisor.** Cultural resource survey of 6,000-acre parcel with several early to mid-twentieth-century buildings and several Late Archaic and Late Woodland prehistoric sites.

**Calverton Naval Weapons Industrial Reserve, Calverton, Suffolk County, NY (9/1996-3/1997). GIS Analyst.** Integrated GIS analysis with lithic analysis to interpret prehistoric activity patterns across the former naval facility.

**Phase IA Archaeological Assessment, Montclair State University, Dormitory Construction Project, Capstone Development Corporation, Little Falls, Passaic County, NJ (2/2010-5/2010). Project Manager.** Prepared archaeological assessment for a proposed dormitory construction project located in the northern section of Montclair State University campus. Review of historical documents, aerial photographs, and maps indicated that the entire project area, now a parking lot for the university, was historically used as a quarry. The project area was heavily impacted by past activities and retained no potential for archaeological resources.

**Archaeological Monitoring, Demolition of the Gloucester City Water Works Reservoir, City of Gloucester, Camden County, NY (5/2009-1/2013). Project Manager.** Coordinated the archaeological monitoring of the demolition of the circa 1873 NRHP-listed Gloucester City Water Works Reservoir, preparation of a Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) recordation of the water works, and the photo documentation of its components during demolition.

**Phase IA Cultural Resource Assessment, Replacement of the Central Avenue Bridge over Blind Brook, City of Rye, Westchester County, NY (7/2007-5/2009). Project Manager.** Cultural resource assessment, including background research, on-site evaluation, limited field testing, and historic architectural survey and evaluation of early twentieth-century bridge and surrounding area.

**Phase I Archaeological Survey, Mount Vernon Avenue Bridge, County of Morris, Department of Public Works, and the County of Union, Department of Public Works, Chatham, Morris County, and Summit, Union County, NJ (8/2003-5/2004). Principal Investigator.** Coordinated Phase I archaeological assessment of the proposed bridge replacement. Included archaeological fieldwork and assessment of project's potential to affect archaeological resources.

**Cultural Resources Eligibility/Effects Documentation, Two Bridges Road Bridge, County of Passaic and the North Jersey Transportation Planning Authority, Lincoln Park, Wayne and Fairfield, Morris, Passaic and Essex Counties, NJ. (5/2003-5/2005, 3/2008-2/2009). Principal Investigator.** Cultural resource screening, archaeological survey, and historic architectural

resource survey for proposed bridge construction. Survey identified the historical bridge crossing the Pompton River, constructed in 1887 and eligible for the NRHP, identified extensive prehistoric occupation to the project area, and evaluated the surrounding area for additional historic properties. One archaeological site identified in the project area.

**Phase IA Cultural Resource Assessment, Intersection Improvements for Church Street, County of Somerset, Department of Public Works, Bernards Township, Somerset County, NJ (6/2009-10/2010). Project Manager.**

Coordinated the preparation of a cultural resource assessment for proposed improvements to three signalized interchanges along Church Street in Bernards Township. Historic documentary research and environmental factors indicate that portions of the project area are sensitive for prehistoric and/or historic archaeological deposits. Additionally, the project area includes one known historic property, the National Register-listed Liberty Corner Historic District. Further cultural resource investigations were recommended to determine the presence or absence of archaeological resources and to evaluate the potential of the project to affect the historic character and setting of the Liberty Corner Historic District.

**Phase IA Cultural Resource Assessment, Harlem Hospital Center Modernization, DASNY and the New York City Health and Hospitals Corporation, Manhattan, NY (5/2004-10/2006). Project Manager.**

Cultural resource assessment of proposed modernization project. Archaeological assessment of area of potential effect, and historic architectural evaluation of the surrounding area and the preservation, removal, storage, and adaptive reuse of five Works Progress Administration-commissioned murals in buildings slated for demolition. Required Level-II HABS documentation of the Old Nurses Residence (circa 1915), the New Nurses Residence (circa 1932), and the Women's Pavilion Building (circa 1932) prior to demolition.

**Phase IA/IB Cultural Resource Assessment, Beacon Institute for Rivers and Estuaries, DASNY and the New York State OPRHP on behalf of the Beacon Institute for Rivers and Estuaries, Beacon, Dutchess County, NY (10/2006-5/2009). Project Manager.**

Phase IA archaeological assessment and limited Phase IB archaeological field survey of proposed location for the Center for Advanced Environmental Research, positioned on the remnants of nineteenth- and twentieth-century historic brickwork at Denning's Point. Historical document and cartographic research, georeferencing historical maps to modern maps to ascertain past disturbances and/or prior settlement and land use, and assessment of the property's potential to contain historic and/or prehistoric archaeological resources. Identified several locations on Denning's Point with high archaeological potential.

**Phase IA Cultural Resource Assessment, DASNY on behalf of Fordham University, Fordham University New Residence Halls, Fordham University**

**Rose Hill Campus, Bronx, NY (1/2008-5/2008). Project Manager.** Coordinated cultural resource assessment of new residence halls on southwest portion of campus. Required the georeferencing of historical maps to the modern campus to determine archaeological potential of the proposed building locations.

**Historic Architectural Assessment, DASNY, Louis Armstrong House Museum (LAHM) Visitors Center. Corona, Queens County, NY (8/2008-5/2010). Project Manager.** Managed the preparation of a historic architectural assessment for the area surrounding the proposed location of a new visitor's center for the Louis Armstrong House Museum, a National Historic Landmark and New York City Landmark. The historic architectural survey assessed 43 historic properties within view of the proposed visitor's center, including the LAHM, and determined that none of the other 42 historic properties met NRHP eligibility criteria and that the LAHM would not be visually affected by the construction of the proposed visitor's center.

**Historic Resource Inventory Form Preparation, Baruch College Field Building Renovation, DASNY, 17 Lexington Avenue, Manhattan, NY (5/2010-7/2010). Project Manager.** Coordinated the preparation of New York State OPRHP historic resource survey inventory forms for three historic buildings that would be physically and/or visually affected by the renovation of the 1929 Field Building. The three buildings, the Lawrence and Eris Field Building, the Administrative Building for Baruch College (the former Domestic Relations Court Building at 135 East 22nd Street), and Baruch College's Newman Hall (the former Children's Court Building at 137 East 22nd Street) were all found to be eligible for listing in the NRHP.

**Historic Resource Inventory Form Preparation, Brooklyn College (CUNY) Performing Arts Center (PAC) Addition, DASNY, Brooklyn, NY (4/2009-6/2009). Project Manager.** Coordinated the preparation of New York State OPRHP historic resource survey inventory forms for Brooklyn College's Gershwin Hall and associated Hillel Gate entrance, which would be replaced with a state-of-the-art performing arts facility. Gershwin Hall and the Hillel Gate were found to lack sufficient integrity to meet NRHP eligibility criteria.

**Phase IA Cultural Resource Assessment, City College of New York/Advanced Science and Research Science Facility Project, DASNY, City College of New York Campus, Manhattan, NY (4/2006-5/2009). Project Manager and Principal Investigator.** Archaeological assessment and historic architectural survey of proposed location for the Advanced Science Research Center Facility Project, located over the foundation remains of the nineteenth-century Convent of the Sacred Heart, the precursor to Manhattanville College. Conducted historical and cartographic research, identified and analyzed past disturbances and/or prior settlement and land use, used GIS technology to locate the proposed construction on historical maps, and assessed the project's potential effect on historic properties. Identified the potential location of a nineteenth-

century burial vault in the proposed project area, which was then monitored for potential burials during excavation for the foundation to the science facility.

**Phase IA Cultural Resource Assessment, Lehman College New Science Facility Project, DASNY, Lehman College, Bronx, NY (11/2007-2/2009). Project Manager.** Cultural resource assessment for proposed science facility to be attached to Gillet Hall, one of the original buildings at Hunter College's Bronx branch, constructed in 1931. Traced the history of the campus location, which included the nineteenth-century Jerome Park Racetrack followed by the Jerome Park Reservoir at the end of the nineteenth century. No archaeological areas of concern were identified; historic architectural survey identified the Hunter College Campus (Gillet Hall, the Music Building, the Gymnasium, Davis Hall, and the fences, piers, and underground passages) as eligible for listing in the State and National Registers for their historic and architectural significance for the campus's role as the site of the first United Nations, and as a Depression-era Collegiate Gothic-style campus.

**Phase IB Archaeological Survey, DASNY, SUNY College at Purchase, New Residence Hall, Purchase, NY (8/2004-10/2004). Principal Investigator.** Archaeological field survey of 2-acre parcel slated for development of new residence halls. Field survey identified extensive mechanized impacts to the project area, and no archaeological resources were identified.

**Phase I Cultural Resource Assessment, Trenton-Morrisville Toll Bridge Rehabilitation and One Auxiliary Northbound Lane, Delaware River Joint Toll Bridge Commission. Morrisville, Buck County, PA and Trenton, Mercer County, NJ (5/2004-11/2006). Project Manager.** Cultural resource assessment of improvements to interchanges and the Trenton-Morrisville Toll Bridge spanning the Delaware River. Archaeological assessment of proposed ground disturbance and historic architectural assessment of proposed interchange improvements to local structures, including the National Historic Landmark Delaware Division of the Pennsylvania Canal.

**Cultural Resource Eligibility/Effects, Improvements to County Route 571, Delaware Valley Regional Planning Commission, Princeton/Hightstown Road, Princeton Junction, Mercer County, NJ (5/2008-4/2009). Project Manager.** Coordinated the preparation of eligibility/effects documentation for proposed road improvements. Included determination of the project's archaeological resource potential, evaluation of the presence/absence of archaeological resources, and survey of the historic architectural resources in view of project's area of potential effect.



## Tina Fortugno RPA

### Staff Archaeologist

Tina Fortugno conducts Phase IA Archaeological Assessments, Phase IB Archaeological Surveys, Phase II Archaeological Site Evaluations, and Phase III Archaeological Mitigation and Data Recovery. She is practiced in the National Historic Preservation Act (NHPA), the National Environmental Policy Act (NEPA), and New York's State Environmental Quality Review Act (SEQRA) compliance. Tina has served as a principal investigator for nearly 100 projects in New York, New Jersey, Pennsylvania, and Connecticut.

Meets Secretary of Interior Standards for Archaeology (36 CFR Part 61)

#### EDUCATION:

MA, Anthropology, Archaeology, University of Arizona, 2002

BA, Anthropology, Columbia University, 1998

Archaeological Field School, Brown University, 1997

#### CERTIFICATIONS:

Registered Professional Archaeologist

Trenching and Excavation Safety, EMILCOTT Training Institute, 2009

Health and Safety Training for Archaeologists, Panamerican Consultants, Inc., and the New York State Occupational Safety and Health Training and Educational Program, 2006

#### YEARS OF EXPERIENCE:

Dewberry: <1

Prior: 15

#### AFFILIATIONS:

Orange County Chapter New York State Archaeological Association

New York Archaeological Council (NYAC)

Register of Professional Archaeologists

#### CHRONOLOGY:

2016-Present: Dewberry Engineers

2007-2015: The Louis Berger Group

2003-2007: Historical Perspectives, Inc.

2002: National Forest Reserve

2002: University of Arizona Field School

1999-2002: University of Arizona, Arizona State Museum—Borederlands Lab

## SELECTED EXPERIENCE

### Fort Tilden, Gateway National Recreation Area, Queens, New York.

**Archaeologist.** Conducted GPS data recordation and photodocumentation of shoreline, bulkhead, piers, and other historic waterfront features within Fort Tilden for the National Park Service. This project was conducted in order to provide an assessment of the park's waterfront features following the storm surge associated with Hurricane Sandy. Duties also included post-processing and organizing GPS data, in addition to reconciling GPS data with site photographs and helping to establish a base map of the piers and waterfront features extant within the park.

### Phase I Cultural Resource Survey, 20-inch Gas Pipeline from Transcontinental Gas Mainlines (A and E) to Planned Competitive Power Ventures Plant, Williams Gas Pipeline, Middlesex County, NJ. Project Archaeologist/Principal Investigator.

Conducted Phase I cultural resource investigations in association with proposed pipeline including review of archaeological and historic architectural files at the New Jersey State Museum (NJSM) and the New Jersey Historic Preservation Office (NJHPO) in Trenton. Conducted pedestrian reconnaissance, disturbance assessment, and limited Phase IB field investigations of project area including a review of cartographic resources and historic aerial imagery. Authored Phase I cultural resource report for submission to the NJHPO and a Resource Report 4 in support of the client's application to the Federal Energy Regulatory Commission (FERC).

### Pine Hill-Terrace 69kV Transmission Line Rebuild, Atlantic City Electric, Washington Township, Gloucester County and Gloucester Township and Pine Hill Borough, Camden County, NJ. Project Archaeologist.

Developed project budget, project schedule, and testing strategy for Phase I cultural resource survey of 8.2-mile-long transmission line rebuild. Corresponded with NJHPO regarding Project area of potential effect (APE) for both archaeological and historic architectural resources. Conducted background research and coauthored portions of the Phase I report for submission to the NJHPO.

### Phase IA Cultural Resource Investigation Lewis-Higbee 69kV Transmission

**Tina Fortugno RPA**  
Staff Archaeologist

**Line Rebuild, Atlantic City Electric, Atlantic County, NJ. Project Archaeologist.** Developed project budget, project schedule, and testing strategy for Phase I cultural resource survey of proposed transmission line rebuild. Corresponded with NJHPO regarding Project area of potential effect (APE) for both archaeological and historic architectural resources. Conducted background research and coauthored portions of the Phase I report for submission to the NJHPO.

**Phase IA Cultural Resource Investigation Lewis-Ontario 69kV Transmission Line Rebuild, Atlantic City Electric, Atlantic County, NJ. Project Archaeologist.** Developed project budget, project schedule, and testing strategy for Phase I cultural resource survey of proposed transmission line rebuild. Corresponded with NJHPO regarding Project area of potential effect (APE) for both archaeological and historic architectural resources. Conducted background research and coauthored portions of the Phase I report for submission to the NJHPO.

**Archaeological Monitoring, Washington Square Park Test Borings, Manhattan, NY. Project Archaeologist.** Developed archaeological monitoring protocol, project budget, and unanticipated discovery plan for test borings in an area of archaeological sensitivity for both historic resources and human remains. Monitored and recorded test bore excavations. Authored management summary and results of test bore excavations.

**Archaeological Reconnaissance Survey, Jackie Robinson Parkway Roadway Improvements, New York State Museum, Queens, NY. Project Archaeologist.** Supervised Phase I archaeological field investigations, conducted background research, and authored Phase I cultural resource report for submission to the New York State Department of Transportation.

**Archaeological Reconnaissance Survey, Saw Mill River Parkway Roadway Improvements, New York State Museum, Westchester County, NY. Project Archaeologist.** Supervised Phase I archaeological field investigations, conducted background research, and authored Phase I cultural resource report for submission to the New York State Department of Transportation.

**Phase I Archaeological Reconnaissance Survey, Safety Improvements on Route 127 at Evers Street, State Project No. 15-355, Connecticut Department of Transportation (ConnDOT), Fairfield County, CT. Project Archaeologist.** Supervised Phase I field investigation of proposed roadway improvements. Conducted background research and archaeological site review at University of Connecticut in Storrs, CT. Authored Phase I archaeological report for submission to the Connecticut Department of Transportation.

**Phase I Cultural Resource Survey, First Energy, Englishtown-Wyckoff Street 115kv Transmission Line, Manalapan, Millstone, Monroe and East**

**Tina Fortugno RPA**  
Staff Archaeologist

**Windsor Townships, Hightstown Borough, Monmouth, Middlesex, Mercer Counties, NJ. Principal Investigator.** Supervised Phase I archaeological field investigations, conducted background research, and authored archaeological portions of Phase I cultural resource report for submission to the New Jersey Historic Preservation Office.

**Archeological Overview and Assessment, National Park Service (NPS) MASI 2011 A Manhattan Sites, New York, NY. Project Archaeologist.**

Ongoing background and historic research in association with an archeological overview and assessment of six National Park Service sites, including five properties in Manhattan (Federal Hall National Memorial, Theodore Roosevelt Birthplace National Historic Site, General Grant National Memorial, Hamilton Grange National Memorial, and Castle Clinton National Memorial). A single site, Saint Paul's Church National Historic Site, is in Mount Vernon, NY. The archeological overview and assessment includes an evaluation of all existing archeological data and previous cultural resource investigations conducted within each property, in addition to contemporary historical background research to evaluate the potential for intact archeological resources within each property.

**NJ Pipeline Replacement Project, Buckeye Partners, L.P, Union and Middlesex Counties, NJ. Project Archaeologist.** Cultural resource review for proposed 16-inch 6-mile-long pipeline project. Reviewed archaeological and historic architectural files at the New Jersey State Museum (NJSM) and the New Jersey Historic Preservation Office (NJHPO) in Trenton, New Jersey. Conducted pedestrian reconnaissance and disturbance assessment of project area including a review of cartographic resources and historic aerial imagery. Co-authored letter report detailing results of archival review of cultural resource data and disturbance assessment, and provided opinions regarding cultural resource sensitivity of the proposed project corridor.

**Faculty Housing Project, Additional Metal Detecting and Shovel Test Pit Survey, Wolff and Samson, PC/Institute for Advanced Study, Princeton, NJ. Principal investigator.** Additional metal detecting and shovel test survey adjacent to Princeton Battlefield State Park to identify any Revolutionary War period military artifacts in the locations of 15 geophysical test locations and an area in which Revolutionary War military artifacts were previously identified in the project area. Although 21 artifacts were recovered, all of the artifacts post-dated 1900 and therefore none were related to the Battle of Princeton. Co-authored management summary report detailing the results of fieldwork for submission to the Institute for Advanced Study and to the local municipality.

**Stone House Drive Sewer Line Installation, Metal Detecting Survey and Archaeological Monitoring, Institute for Advanced Study, Princeton, NJ. Principal Investigator.** Metal detecting survey and archaeological monitoring associated with the installation of a sewer line along Stone House Drive in Princeton, NJ. The proposed sewer line is located in the immediate vicinity of the

Princeton Battlefield State Park. The metal detecting survey and archaeological monitoring was conducted to identify any potential Revolutionary War period military artifacts or deposits in the utility line project area. No Revolutionary War period or eighteenth-century artifacts were identified; historic artifacts, primarily mid-nineteenth- to twentieth-century domestic and agricultural-related materials were observed. Co-authored management summary reports detailing the results of fieldwork for submission to the Institute for Advanced Study and to the local municipality.

**Phase I Archaeological Investigation for Phase III Demolish and Remove Hazardous Structures Park-Wide, NPS, Delaware Water Gap National Recreation Area, NJ. Principal Investigator.** Cultural resource investigation in association with proposed demolition of hazardous structures within five historic properties in the New Jersey section of the Delaware Water Gap National Recreation Area. Supervised Phase I field investigations, conducted background research on historic properties that will be affected, and co-authored end of fieldwork management summary and Phase I cultural resource report for submission to the NPS.

**Phase I/II Cultural Resource Investigations, Susquehanna to Roseland 500kV Transmission Project, Pennsylvania Power and Light, Luzerne, Lackawanna, Wayne, Pike, and Monroe Counties, PA. Project Archaeologist.** Cultural resource survey of 100-mile transmission corridor and more than 100 miles of temporary access roads in support of federal, state, and local permitting processes. Co-authored several Phase I/Phase II cultural resource reports detailing the results of archaeological fieldwork for submission to the Pennsylvania Historic Museum Commission-Bureau of Historic Preservation (PHMC-BHP). Identified and evaluated 18 prehistoric and/or historic archaeological sites and more than 1,000 historic architectural resources.

**Phase I/II Cultural Resource Investigations, Susquehanna to Roseland 500kV Transmission Project, Pennsylvania Power and Light and Public Service, Electric and Gas, Delaware Water Gap National Recreation Area, Monroe County, Pennsylvania, and Warren County, NJ. Project Archaeologist.** Cultural resource survey of the portions of the transmission project extending through the Delaware Water Gap National Recreation Area as part of the Section 106 process. Identified and evaluated 25 prehistoric and historic archaeological sites and historic architectural resources (including the Appalachian Trail). Co-authored several cultural resource reports, including end of fieldwork summaries, detailing the results of archaeological fieldwork for submission to the National Park Service (NPS), PHMC-BHP, and the New Jersey Historic Preservation Office.

**Phase I Cultural Resource Assessment, Bronx River Parkway Reservation Pedestrian Pathway, Westchester County Department of Parks, Recreation, and Conservation, Scarsdale, NY. Project Archaeologist.** Supervised Phase I

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Staff Archaeologist

archaeological field investigations, conducted background research on the project area, including historical research focusing upon the Bronx River Parkway Reservation, and served as primary author for Phase I cultural resource report for submission to the New York State Office of Parks, Recreation, and Historic Preservation. A single prehistoric site was identified and registered with the New York OPRHP as a result of the investigations.

**World Trade Center Campus Plan, Utility Test Pits, Port Authority of New York and New Jersey (PANYNJ) and the Federal Emergency Management Agency (FEMA), New York City, NY. Project Archaeologist.** Archaeological monitoring of heavy machinery and construction excavations in association with the proposed installation of utilities surrounding the World Trade Center campus. Co-authored report.

**Glaser's Pond, New Jersey Department of Transportation (NJDOT), Franklin Lakes, New Jersey. Archaeologist.** Evaluated archaeological sensitivity for proposed environmental and flood control alterations to small pond in Franklin Lakes, New Jersey. Included archaeological site file and historic property research at the New Jersey State Museum and New Jersey Historic Preservation Office in Trenton, in addition to an on-site evaluation and photo recordation.

**Phase IA Cultural Resource Assessment, Gowanus Canal Corridor Rezoning, New York City Department of City Planning, Brooklyn, NY. Project Archaeologist.** Conducted background research, on-site evaluation, and co-authored assessment report for the proposed rezoning of 24-block area. Research was conducted on the ownership and occupation history of 16 lots, and each of the lots or portions of each was found to have potential to contain intact archaeological deposits associated with the residential occupancy of the lots and/or the historic construction of the Gowanus Canal bulkhead, part of the National Register-eligible Gowanus Canal Historic District.

**Phase IA Cultural Resource Assessment, Broadway Triangle Redevelopment Project, New York City Department of Housing Preservation and Development, Williamsburg, Brooklyn, NY. Principal Investigator.** Conducted background research and co-authored assessment for the proposed rezoning of nine-block area. Rezoning was designed to implement a mixed-use district with wide range of uses, residential and commercial. Research was conducted on the ownership and occupation history of the rezoning area. Project was found to have no effect on archaeological resources; five properties identified and evaluated as part of this study were recommended as eligible for listing in the State and National Registers.

**Phase IA Cultural Resource Assessment, Fordham University New Residence Halls, Dormitory Authority of the State of New York (DASNY) on behalf of Fordham University, Fordham University Rose Hill Campus, Bronx, NY. Project Archaeologist.** Conducted historical research and on-site

evaluation, and co-authored assessment report for cultural resource assessment of new residence halls.

**Update of Integrated Cultural Resource Management Plan (ICRMP) for Fort Dix Army Base, U.S. Army Directorate of Public Works, Manchester Township, NJ. Archaeologist.** Participated in the manual conversion of over 500 pages of text from a scanned image to an editable document format and updating the content of the ICRMP to include historic resource information identified in the five prior years.

**Phase IA Cultural Resource Assessment, Fort Dix Buildings, U.S. Army Directorate of Public Works, Fort Dix Army Base, Manchester Township, NJ. Project Manager.** Coordinated preparation of assessment of proposed project's potential to encounter archaeological resources in the 1.4-acre parcel for new military housing facilities.

**Phase IA Cultural Resource Assessment, Dutch Kills Rezoning, New York City Department of City Planning, Queens, NY. Project Archaeologist.** Proposed rezoning of 40-block area adjacent to the Sunnyside Yards and north of Queens Plaza Research was conducted on the ownership and occupation history of the five lots, and each of the five lots or portions of each of the lots was found to have potential for intact archaeological deposits.

**Phase IA Cultural Resource Assessment, Proposed New Primary/Intermediate School at PS/IS 48, William Wordsworth School, New York City School Construction Authority, Queens, NY. Project Archaeologist.** Conducted historical research, on-site evaluation, and co-authored assessment report.

**Phase IA Cultural Resource Assessment, Replacement of the Central Avenue Bridge over Blind Brook (BIN 2225280), City of Rye, Rye, NY. Project Archaeologist.** Background research, on-site evaluation, limited field testing; co-authored assessment report for proposed bridge replacement.

**Phase I Archaeological Investigation, Frazee House and Grounds, Fanwood/Scotch Plains Rotary/the Aunt Betty Frazee Project, Scotch Plains, Union County, NJ. Project Archaeologist/Field Director.** Systematic subsurface excavations and controlled test unit excavations in the front, side, and rear yards of eighteenth-century Frazee House, as part of a holistic approach to preservation of the house. Testing in rear and side yards revealed extensive disturbance as a result of twentieth-century land manipulation and use. Investigations in the front yard revealed that this area had not been as severely manipulated and exposed fairly intact historic deposits. A light domestic scatter of historic ceramics, kaolin pipe stem fragments, and bottle glass was recovered from the front yard.

**Phase I Archaeological Investigation, Stream Restoration and Related Work in the Sweet Brook Bluebelt, JRC Construction Corporation, Annadale, Staten Island, NY. Project Archaeologist/Field Director.** Archaeological investigations in advance of the restoration and alteration of two sites along the Sweet Brook Bluebelt and its associated wetlands, involving assessment of past ground disturbance and potential for historic archaeological resources in the project area. Property is owned by the New York City Department of Environment Protection and regulated by the New York State Department of Environmental Conservation.

**Phase IB Archaeological Survey, Eagle Academy for Young Men, New York City School Construction Authority, Block 2923, Lots 17, 23, & 26, Bronx, NY. Project Archaeologist/Field Director.** Archaeological trenching at proposed school in the Tremont section of the Bronx. Excavations identified, evaluated, and mitigated a buried historic trash scatter and bottle dump feature dating to the early to mid-twentieth century.

**Phase I Cultural Resource Investigation, Atlantic City Airport/Federal Aviation Administration Technical Center Intersection Improvements, South Jersey Transportation Planning Organization, Egg Harbor Township, Atlantic County, NJ. Archaeologist.** Conducted archaeological field investigations and background research. Co-authored report.

**Phase I Cultural Resource Investigation, Atlantic City Expressway Direct Connector Road, South Jersey Transportation Planning Organization, Egg Harbor Township, Atlantic County, NJ. Archaeologist.** Conducted background research and co-authored report.

**Phase IA Archaeological Assessment, Proposed Vent Plants, West 53<sup>rd</sup> and 55<sup>th</sup> Streets and Eighth Avenue, New York City Transit, New York, NY. Archaeologist.** Conducted historical research, on-site evaluation, and co-authored report.

**Phase I Archaeological Survey for Proposed Detention Basin Sites Associated with Proposed New Jersey Turnpike Widening to Interchanges 6 to 8A, New Jersey Turnpike Authority, Burlington, Middlesex, and Mercer Counties, NJ. Archaeologist.** Cultural resource survey along 27-mile corridor of the turnpike from Interchanges 6 to 9 as part of the E.O. 215 process.

**Archaeological Documentation, Hudson River Bulkhead, World Trade Center (WTC) PATH Terminal, PANYNJ, New York City, NY. Archaeologist.** Documentation of the late nineteenth-century Hudson River Bulkhead located underneath the West Side Highway and within the footprint of the proposed underground pedestrian connector between the new WTC PATH station and the World Financial Center. Tasks included monitoring construction and documenting the extent, nature, and design of the bulkhead in the project area.

**Tina Fortugno RPA**  
Staff Archaeologist

**Cultural Resource Services, Second Avenue Subway, Phase 1, New York City Transit, New York, NY. Archaeologist.** Oversight and coordination of cultural resource compliance for final design and construction of Phase 1 of the Second Avenue Subway, East 63<sup>rd</sup> to East 99<sup>th</sup> streets. Responsible for archaeological monitoring and implementing archaeological fieldwork in advance of and during construction.

**Emergency Recovery of World Trade Center (WTC) Remains, Office of Chief Medical Examiner (OCME), New York, NY. Technician.** Participated in large-scale search and recovery effort for human remains and personal effects within soils removed from the WTC Site. Required completion of OCME health and safety training for the handling of potentially hazardous materials and daily use of personal protective equipment, including half-face respirator masks, gloves, and Tyvek suits. Water screening of excavated materials removed from the WTC and associated sites, including recovery of human remains, evidence from the September 11 attacks, personal effects, and historic cultural material from within the complicated matrix of soils, dust, building debris, and twentieth-century construction fill.

**Engineering District 4-0, Phase II Archaeological Investigation for Proposed Improvements to the Woodloch Intersection of SR590 and SR0408, Pennsylvania Department of Transportation (PennDOT), Lackawanna Township, Pike County, PA. Crew Chief.** Phase II archaeological fieldwork at potentially multicomponent (Middle Archaic to Late Woodland) precontact site. Provided additional supervisory support for the excavation of more than 40 1x1-meter test units to delineate the boundaries and evaluate the National Register eligibility of the site. For PennDOT, Engineering District 4-0.

**Supplemental Phase IB Archaeological Survey for Proposed Improvements to SR 0706, PennDOT, Engineering District 4-0, Susquehanna County, PA. Field Director.** Archaeological survey of SR 0706 corridor, which identified a precontact archaeological deposit in the vicinity of previously recorded precontact sites.

**Phase IA Cultural Resource Assessment, Lehman College New Science Facility Project, Dormitory Authority of the State of New York, Lehman College, Bronx, New York. Archaeologist.** Background research, on-site evaluation, and co-author of assessment report for proposed construction of new science facility.

**Phase I/II Cultural Resource Investigations along County Road No. 13 (Chase Road), PennDOT, Engineering District 4-0, Luzerne County, PA. Editor.** Served as editor and prepared graphics for synthetic report of Phase I and Phase II archaeological investigations. Work was originally conducted by Ecoscience, Inc.

**Tina Fortugno** RPA  
Staff Archaeologist

**Phase I/II Cultural Resource Investigations along County Road No. 16  
(Chase Road), PennDOT, Engineering District 4-0, Luzerne County, PA.**

**Editor.** Served as editor and prepared graphics for synthetic report of Phase I and Phase II archaeological investigations. Work was originally conducted by Ecoscience, Inc.



Meets Secretary of Interior Standards for Architectural History (36 CFR Part 61)

#### EDUCATION:

MS, Historic Preservation, Columbia University, 2003

BA, Liberal Studies, Pace University, 1998

#### YEARS OF EXPERIENCE:

Dewberry: <1

Prior: 18

#### AFFILIATIONS:

National Trust for Historic Preservation Forum

Society of Architectural Historians

Vernacular Architecture Forum

Preservation Alumni, Columbia University

Historic Preservation Commission, Village of Ossining, New York, 2000-Present

Ossining Historical Society Museum, 1997-Present. President, 2003-2006; Vice President 2006-Present; Board of Trustees, 1997-Present.

Village Historian, Village of Ossining, New York, 2010-2014

Preservation League of New York State

Connecticut Trust for Historic Preservation

National Main Street Center

#### CHRONOLOGY:

2016-Present: Dewberry Engineers

2003-2016: Ossining

2007-2014: Louis Berger Group

2004-2007; 2014-2015: Lynn Drobbin & Associates

# Deborah Van Steen

## Architectural Historian

Deborah Van Steen provides an array of architectural history and historic preservation services to transportation agencies, utility companies, and municipal governments for federal- and state-funded transportation projects in New York and New Jersey in compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, the National Environmental Policy Act (NEPA) of 1969, Section 14.09 of the New York State (NYS) Historic Preservation Act of 1980, and New York's State Environmental Quality Review Act (SEQRA), and New York City Environmental Quality Review (CEQR). These projects, from small rehabilitation planning projects to large corridor studies, have documented and evaluated a wide variety of historic resources, including college campuses and transportation, residential, agricultural, urban, and rural properties. Deborah has managed architectural and cultural resource identification surveys and historical research, conducted determination of eligibility and project effects and impacts analyses, and prepared National Register and Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) documentation. She has also worked on projects in Connecticut, Pennsylvania, Illinois, Tennessee and Kentucky.

## SELECTED EXPERIENCE

**Rebuild By Design Meadowlands, NJDEP, Bergen County, NJ. Architectural Historian**, as a subconsultant, for the NEPA Environmental Impact Statement (EIS) for this project that conceptually consists of a large natural reserve along the Hackensack River, which would connect and expand marshland. The design aims to use a system of green and gray infrastructure, to protect against ocean surges and rain event flooding.

**Rebuild By Design Hudson River: Resist-Delay-Store-Discharge, NJ TRANSIT and NJDEP, Hudson County, NJ. Architectural Historian** for the Feasibility Study and NEPA EIS for a \$230-million comprehensive urban water strategy conceived to protect the Hoboken waterfront, as well as parts of Weehawken and Jersey City. The project incorporates hard and nature-based infrastructure measures to address surge protection, coastal defense, and systemic drainage issues.

**Hashamomuck Marine Waterway Access, New York State Department of Environmental Conservation, Suffolk County, NY. Architectural Historian** for NEPA Environmental Assessment (EA), planning, design, and permitting of new waterway access to Southold Bay and the Peconic Estuary. The project includes a double lane boat ramp, picnic area, and parking, taking into consideration recreational requirements and habitat restoration.

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### **Fort Tilden, Gateway National Recreation Area, Queens, New York.**

**Archaeologist/Historian.** Conducted GPS data recordation and photodocumentation of shoreline, bulkhead, piers, and other historic waterfront features within Fort Tilden for the National Park Service. This project was conducted in order to provide an assessment of the park's waterfront features following the storm surge associated with Hurricane Sandy. Duties also included post-processing and organizing GPS data, in addition to reconciling GPS data with site photographs and helping to establish a base map of the piers and waterfront features extant within the park.

### **Concerned Citizens of Ossining, Ossining, Westchester County, NY.**

**Architectural Historian.** Survey and evaluation of Tavano Road Houses, a development builder and architect-designed mid-century modern homes. Conducted research and prepared historic context to establish National Register eligibility in preparation for potential listing on the National Register.

### **Friends of Sing Sing Prison, Ossining, Westchester County, NY. Committee**

**Member; Architectural Preservation Review Panel.** Local and regional organization to establish a museum at Sing Sing Prison. Request for proposal and qualification review for resource stabilization. The project involved stabilization and adaptive use of the historic powerhouse and original cellblock ruins.

**Down to Earth Markets and Jon Zeltzman, Ossining, Westchester County, NY. Consultant.** Explore possibilities to establish pop-up retail market at Market Square. Market Square is located with the locally designation and National Register-listed historic downtown. The area is currently the subject of local development efforts; the decision was made to explore options for upcoming projects the following year.

### **Concerned Citizens of Ossining, Ossining, Westchester County, NY.**

**Architectural Historian.** Presentation to the Town of Ossining Planning Board regarding Environmental Impact Statement (EIS) for Highview Farm Development historic resource analysis and effects assessment of Tavano Road Houses. Tavano Road Houses consist of and early twentieth century estate subdivision with mid-century modern homes.

### **Friends of Brace Cottage and Mark Fry, Tarrytown, Westchester County,**

**NY. Architectural Historian.** Presentation to the Tarrytown Planning Board regarding Environmental Impact Statement (EIS) historic resource analysis and effects assessment of Brace Cottage. Brace Cottage is a historic property planned to be demolished as part of the Westchester Estates at Wilson Park project. Liaison with the NYS Office of Parks, Recreation, and Historic Preservation (OPRHP). Provided updated information and request for new NYS Determination of Eligibility.

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**Dale Cemetery National Register of Historic Places Registration Form, Ossining, Ossining Historical Society, Westchester County, NY.**

**Architectural Historian.** Coordination with NYS OPRHP. Prepare and edit cemetery history and historic context of funerary art, document editing, resource verification, and document citations. Photography of the cemetery and individual features, locate historic photographs.

**Charles Lockwood, Author of *Bricks and Brownstone*, Expert and Consultant on Restoration of Historic Townhouse Facades and Interiors, New York, NY. Research Consultant.** Conduct research on a row house in Chelsea. Provided historical records, historical maps, census records, photographs, early tax records, and genealogical information.

**Roger Pellaton, Architect, Ossining, NY. Architectural Historian.** Conduct research on a brick rowhouses located in Ossining. Provided historical records, historical maps, census records, photographs, early tax and land records, and genealogical information.

**Bronx River Parkway Reservation Pedestrian Pathway, Phase IA, Westchester County Department of Parks, Recreation, and Conservation, Cultural Resource Services, Scarsdale, NY. Architectural Historian** Identification of historic architectural resources along the historic parkway in the project area.

**Phase IA Cultural Resources Survey for the Proposed Southport Development Project, Pennsylvania Department of General Services and Weston Solutions, Inc., City of Philadelphia, PA. Architectural Historian.** Fieldwork, research, and identification of historic properties, and preparation of historic architectural resources component for the cultural resource survey for the proposed development of an approximately 116-acre marine container terminal located east of the former U.S. Naval Station on League Island and south of the Walt Whitman Bridge. The proposed project was found to have no potential to affect historic properties in the project area.

**Gloucester City Water Works & Settling Basin Historic American Engineering Record (HAER) Recordation and Archaeological Monitoring, City of Gloucester City, Camden County, NJ. Architectural Historian and Photographer.** Prepared HAER documentation and digital photography of historic Settling Basing and Reservoir at the National Register-eligible Gloucester City Water Works pursuant to a Memorandum of Agreement concerning the demolition and replacement of the reservoir.

**Phase IA Cultural Resource Assessment, Intersection Improvements for Church Street, County of Somerset, Department of Public Works, Bernards Township, NJ. Architectural Historian.** Conducted historic architectural survey to identify potential historic properties in the study area for proposed

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improvements to three signalized interchanges along Church Street in Bernards Township. Study area also included one known historic property, the National Register-listed Liberty Corner Historic District. Further cultural resource investigations were recommended to evaluate the potential of the project to affect the historic character and setting of the Liberty Corner Historic District.

**Chatham Square/Park Row Improvement Project, Lower Manhattan Development Corporation, New York, NY. Architectural Historian.** Initial cultural resource screening review of previously documented historic properties present in the proposed project's Area of Potential Effects (APE) and consultation documents for NYS OPRHP and New York City Landmarks Preservation Commission in advance of cultural resource assessment for compliance under the SEQRA.

**Brooklyn College (CUNY) Performing Arts Center Addition, Dormitory Authority of the State of New York (DASNY), Brooklyn, NY. Architectural Historian.** Evaluated National Register eligibility of and completion of NYS OPRHP Historic Resource Inventory Form for Gershwin Hall, Whitman Theater, and Hillel Gate entrance prior to replacement of Gershwin Hall and Hillel Gate with a state-of-the-art performing arts facility. The resources were found to lack sufficient integrity to meet NRHP eligibility criteria.

**Office of Court Administration Training Academy, DASNY, Brooklyn, NY. Architectural Historian.** Evaluation of National Register eligibility of and completion of New York State OPRHP Historic Resource Inventory Forms for SEQRA Environmental Assessment of St. Teresa of Avila Auditorium/Gymnasium, St. Teresa's Boys School, and St. Teresa's Convent. The buildings, which would be physically and visually affected by the proposed project, were found not to meet NRHP eligibility criteria.

**Central Avenue Bridge Replacement, Phase 1, City of Rye, Cultural Resource Services, Rye, NY. Architectural Historian.** Evaluation of National Register eligibility of historic architectural resources adjacent to early twentieth-century historic bridge over Blind Brook.

**Louis Armstrong House Museum National Historic Landmark, DASNY, Cultural Resource Services, Corona, Queens County, NY. Architectural Historian.** Evaluation of National Register eligibility of properties adjacent to project area and potential impacts to the Louis Armstrong House Museum, a National Historic Landmark, for proposed construction of new Visitors Center under SEQRA.

**Gowanus Canal Corridor Rezoning Project, New York City Department of Planning, Cultural Resource Services, Gowanus, Brooklyn, NY. Architectural Historian.** Survey of historic properties, evaluation of National Register and NYC Landmarks eligibility of and potential impacts for historic

architectural resources adjacent to and/or in proposed rezoning area in compliance with the City Environmental Quality Review (CEQR).

**Dutch Kills Rezoning Project, New York City Department of Planning, Cultural Resource Services, Long Island City, Queens, NY. Architectural Historian.** Survey of historic properties, evaluation of National Register and NYC landmarks eligibility of and potential impacts for historic architectural resources adjacent to and/or in proposed rezoning area pursuant to CEQR.

**Fordham University New Residence Halls, Fordham University, Rose Hill Campus, DASNY, Cultural Resource Services, Bronx, NY. Architectural Historian.** Evaluation of National Register eligibility of and potential impacts for historic architectural resources adjacent to and/or within proposed project area in compliance with SEQRA.

**Burlington Sod Farm, The Burlington County Board of Chosen Freeholders, Cultural Resource Services, Springfield Township, Burlington County, NJ. Architectural Historian.** Survey and intensive research of historically sensitive agricultural properties dating back to the eighteenth century. Evaluation of State and National Register eligibility pursuant to New Jersey Executive Order 215 (E.O. 215).

**Phase IA Cultural Resource Assessment, Beacon Institute for Rivers and Estuaries, DASNY, and the NYS OPRHP, Beacon, NY. Architectural Historian.** Conducted survey and assessment of historic resources, and determined impacts to historic properties under SEQRA for the new Center of Advanced Environmental Research at Dennings Point. The site of former brickworks on the Hudson River was identified; no impacts to historic architectural properties were defined.

**Phase IA Cultural Resource Assessment, Proposed New Primary/Intermediate School at PS/IS 48, William Wordsworth School, New York City School Construction Authority, Queens, NY. Architectural Historian.** Responsible for evaluation of historic architectural resources surrounding site of new primary/intermediary school adjacent to historic school building.

**Lehman College New Science Facility, Environmental Review, DASNY, Cultural Resource Services, Bronx, NY. Architectural Historian.** Conducted field survey and research under SEQRA for the evaluation of National Register eligibility of and potential impacts for proposed science facility to be attached to Gillet Hall, one of the original buildings at Hunter College's Bronx branch, pursuant to SEQRA. Historic resource assessment and preparation of NYS Historic Resource Inventory Forms. The twentieth-century Hunter College Campus (Gillet Hall, the Music Building, the Gymnasium, Davis Hall, and the fences, piers, and underground passages), completed in 1932, was determined

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eligible for listing in the State and National Registers for their historic and architectural significance for the campus's role as the site of the first United Nations, and as a Depression-era Collegiate Gothic-style campus.

**Phase IA Cultural Resource Assessment, Broadway Triangle Redevelopment Project, New York City Department of Housing Preservation and Development, Williamsburg, Brooklyn, NY. Architectural Historian.** Survey of historic properties, evaluation of National Register and NYC Landmarks eligibility, and potential impacts for historic architectural resources adjacent to and/or in the proposed nine-block rezoning area under CEQR. Of the properties identified and evaluated, five were recommended as eligible for listing in the State and National Registers.

**Manhattanville College, Ophir Farm, Purchase Environmental Protective Association (PEPA), Purchase, Westchester County, NY. Architectural Historian.** Provided cultural resource assistance, document review, and third-party review of Environmental Impact Statement for Ophir Farm property as presented for potential development under State Environmental Quality Review Act (SEQR).

**Northern Branch Corridor Rail Project, NJ TRANSIT, NJ. Architectural Historian.** Prepared Draft Environmental Impact Statement (DEIS) historic resource analysis and effects assessment.

**Safety Improvements Route 127, Connecticut Department of Transportation, Bridgeport, Fairfield County, CT. Architectural Historian.** Conducted research on development of Bearsley Park for State Level Documentation, Rock outcroppings, Beardsley Park.

**Cultural Resource Services, Garden State Parkway Interchange 125 HAER, New Jersey Turnpike Authority (NJTA), Sayreville Borough, Middlesex County, NJ. Architectural Historian.** Prepared HAER documentation of Interchange 125 and Chevalier Avenue Bridges, contributing features to the National Register-eligible Garden State Parkway Historic District, as mitigation for Interchange 125 Improvements Project.

**Cultural Resource Services, Garden State Parkway, Interchanges 9, 10, and 11 HAER, NJTA, Middle Township, Cape May County, NJ. Architectural Historian.** Prepared HAER documentation of the Cape May By-Pass segment of the National Register-eligible Garden State Parkway Historic District as mitigation for elimination of at-grade intersections at the three interchanges. Documentation included research at the New Jersey State Archives, NJTA, New Jersey Department of Transportation (NJDOT), and coordination with the Cape May County Historical and Genealogical Society and Cape May Chamber of Commerce.

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**Cultural Resource Services, Garden State Parkway, Interchanges 35 to 38 Improvements, NJTA, Egg Harbor Township, Atlantic County, NJ.**

**Architectural Historian.** Identification and evaluation of historic architectural resources adjacent to the Garden State Parkway and interchanges within the project area, preparation of New Jersey Architectural Survey Forms, and assessment of potential impacts to historic properties, including the National Register-eligible Garden State Parkway Historic District.

**O'Hare Modernization Project, Chicago, Church Cemetery, Addison Township, DuPage County, IL. Forensic Genealogist and Architectural Historian.**

Compiled extensive descendant-based genealogies to locate unknown heirs and assisted in determination of next of kin for approximately 800 individuals interred at a historic German church cemetery in Illinois. Applied methods consistent with professional guidelines, including the genealogical proof standard, and prepared supporting documentation on a variety of litigation issues. Exhaustive research included analysis and interpretation of original German church baptism, marriage, and death records dating to the mid-nineteenth century to present day, census records, obituaries, newspaper articles, state death and marriage records, social security death indexes; cross-referenced major genealogical repositories and reviewed private collections. Conducted photographic recordation of approximately 700 headstones and all other above-ground features of the National Register-eligible mid- to late nineteenth-century cemetery. Digital SLR photography was used and images prepared for 5x7 archival prints pursuant to the Memorandum of Agreement. Prepared and reviewed chapters for Final Report.

**Cultural Resource Assessment, E. 68th St./Hunter College Subway Station Improvement Project, New York City Transit, Manhattan, NY. Architectural Historian.**

Completed cultural resource assessment for the proposed ADA improvements to the Lexington Avenue subway line. Assessment included identification of historic properties within the project area, conducting historic architectural survey of historic properties 50 years in age or greater and assessing the project's potential to adversely affect historic properties. NYS Office of Parks, Recreation & Historic Preservation Historic Resource Inventory Forms were completed. Project identified the Imperial House Apartments and Thomas Hunter Hall as National Register-eligible.

**Phase I Cultural Resource Investigation, Atlantic City Expressway Direct Connector Road, South Jersey Transportation Authority and Federal Aviation Administration, Egg Harbor Township, Atlantic County, NJ.**

**Architectural Historian.** Review of historic architectural survey and assessment of potential historic properties, 50 years and older, in the vicinity of the Atlantic City Expressway and the Atlantic City International Airport access road. Field investigations identified no significant historic architectural resources in the proposed project area.

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**Cultural Resource Services, Route 33 Emergency Bridge Repair, NJDOT, Hightstown, Mercer County, NJ. Architectural Historian.** Prepared technical memo to address potential impacts to historic properties for emergency bridge repairs resulting from damage incurred during Hurricane Irene.

**Cultural Resource Services, Tuckahoe Road Bridge (CR 557) HAER, NJDOT, Estell Manor, Atlantic County, NJ. Architectural Historian.** Prepared Historic American Engineering Record (HAER) documentation of an early twentieth-century highway bridge over historic rail line as mitigation for bridge replacement project.

**Cultural Resource Services, Garden State Parkway Interchange 125 Improvements, NJTA, Sayreville Borough and City of South Amboy, Middlesex County, NJ. Architectural Historian.** Environmental constraints and screening, and National Register eligibility of and potential impacts to the Garden State Parkway Historic District and adjacent properties in compliance with Executive Order 215 (EO 215).

**Cultural Resource Services, Goethals Bridge Replacement Project, U.S. Coast Guard and Port Authority of New York and New Jersey (PANYNJ), Elizabeth, NJ, and Staten Island, NY. Architectural Historian.** Section 106 and NEPA compliance involving evaluation of National Register eligibility of and potential impacts for historic architectural resources adjacent to bridge, preparation of New Jersey Architectural Survey Forms, assessment of adverse effects, and development of stipulations for Memorandum of Agreement.

**Program Management Services for the George Washington Bridge Bus Station Redevelopment, PANYNJ, New York, NY. Architectural Historian.** Provide cultural resource consultation and program review “as needed” as a component of oversight of renovations to the 1963 Nevi-designed bus station.

**Cultural Resource Services, New Jersey Turnpike Widening Interchange 6-8A, Phase 1, NJTA, Various Counties, NJ. Architectural Historian.** Evaluation of National Register eligibility of and potential impacts to historic architectural resources and historic corridors adjacent to and/or crossing the Turnpike between Exits 6 and 8A, and preparation of New Jersey Architectural Survey Forms.

**Cultural Resource Services for Proposed Replacement Fretz Road Bridge, Pennsylvania Department of Transportation (PennDOT) Engineering District 6-0, Lower Salford Township, Montgomery County, PA. Architectural Historian.** Produced Historic Resource Survey Forms for Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation.

## **Deborah Van Steen**

Architectural Historian

### **Cultural Resource Services, Garden State Parkway, Interchanges 9, 10, and 11, NJTA, Middle Township, Cape May County, NJ. Architectural Historian.**

Evaluation of State and National Register eligibility of and potential impacts to historic architectural resources adjacent to the parkway and related cross streets, and preparation of New Jersey Architectural Survey Forms. Determination was made of an Adverse Effect to the National Register-eligible Garden State Parkway Historic District.

### **Cultural Resource Eligibility/Effect Investigation, Two Bridges Road Bridge and West Belt Highway Extension, North Jersey Transportation Planning Authority and the NJDOT, Various Counties, NJ. Architectural Historian.**

Evaluation of National Register eligibility of historic architectural resources near the historic bridge over the Pompton River and related roadway improvements, preparation of New Jersey Architectural Survey Forms, and assessment of effects to Pompton River Bridge.

### **Engineering District 4-0, Historic Resource Survey/Eligibility and Effect for Proposed Improvements to the SR171, PennDOT, Jail Hill, Borough of Lanesboro, Susquehanna County, PA. Architectural Historian.**

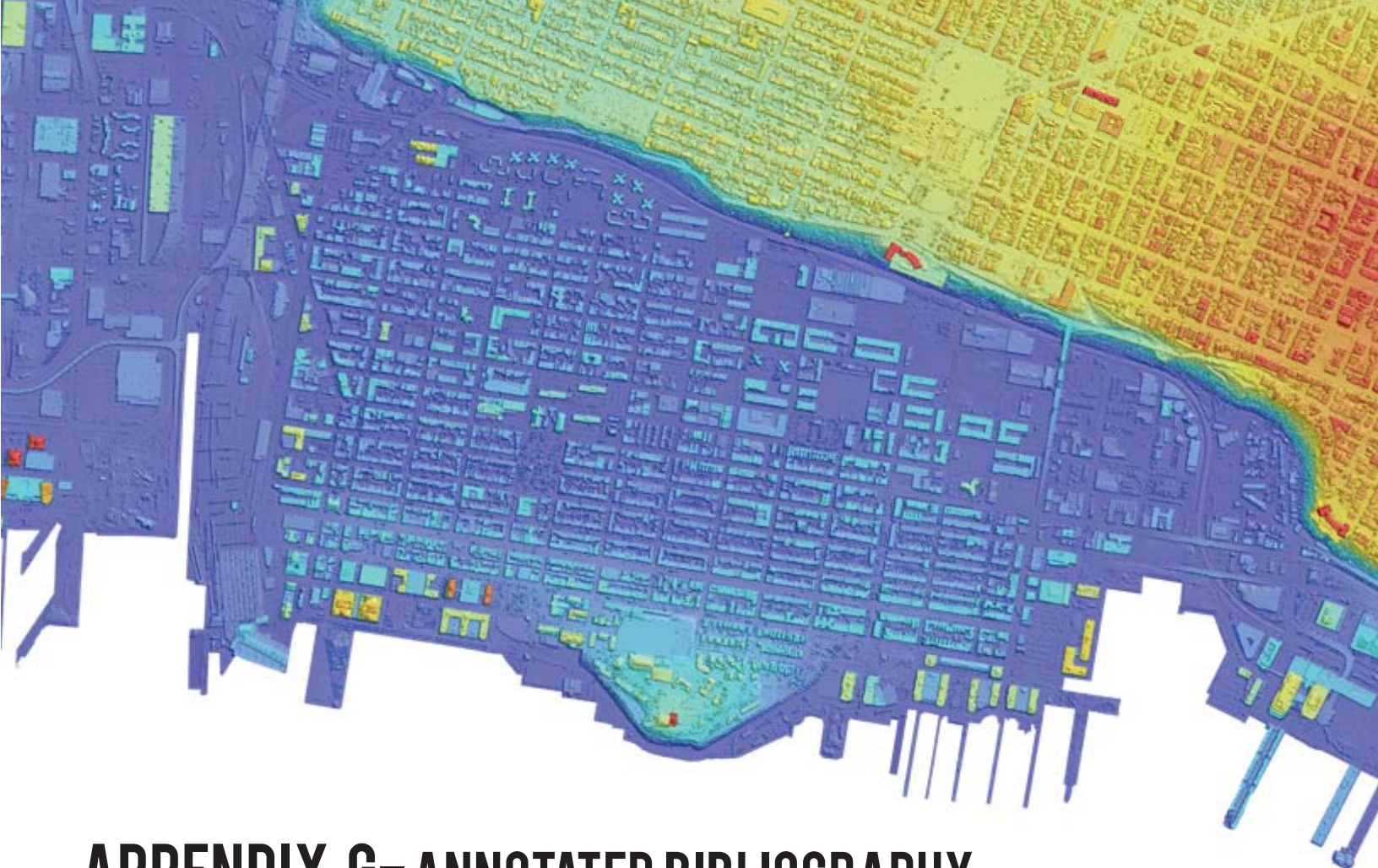
Responsible for implementation of the scope of services for historic architectural resources, assessment of impacts, and evaluation of National Register eligibility for historic resources located in/adjacent to proposed project right-of-way. Produced Historic Resource Survey Forms for Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation.

### **Cultural Resource Services, Second Avenue Subway, Phase 1, New York City Transit, New York, NY. Architectural Historian.**

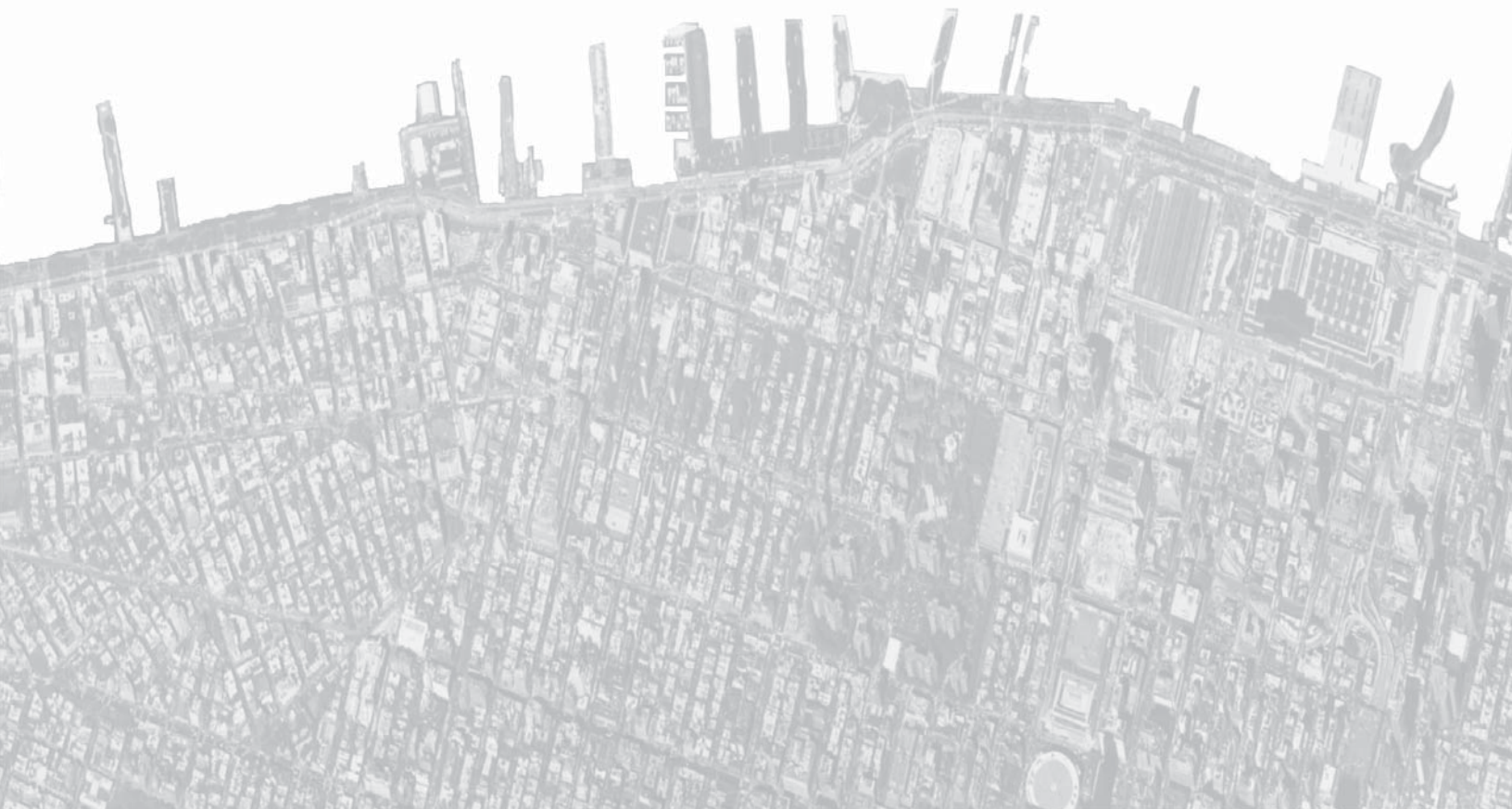
Identification and evaluation of National Register eligibility of historic architectural resources adjacent to the proposed station locations for Second Avenue Subway from East 63rd to East 99th streets. Prepared NYS Office of Parks, Recreation & Historic Preservation Historic Resource Inventory Forms. Coordinated with the project manager and provided input for structural remediation plans for historic properties.

### **Engineering District 4-0, Phase II Archaeological Investigation for Proposed Improvements to the Woodloch Intersection of SR590 and SR0408, PennDOT, Lackawanna Township, Pike County, PA. Architectural Historian.**

Responsible for implementation of the scope of services for historic architectural resources, assessment of impacts, and evaluation of National Register eligibility of the historic ruins of former mill with associated raceways, barn foundations, and extant farmhouse located in/adjacent to proposed project right-of-way. Produced Historic Resource Survey forms for Pennsylvania Historical and Museum Commission, Bureau for Historic Preservation.



## APPENDIX G- ANNOTATED BIBLIOGRAPHY



**APPENDIX G**  
**NEW JERSEY HISTORIC PRESERVATION OFFICE ANNOTATED BIBLIOGRAPHY FORM**

Dewberry Engineers Inc.

Author: Zachary Davis, MA, RPA (Senior Archaeologist); Tina Fortugno, MA, RPA (Archaeologist); Deborah Van Steen (Architectural Historian)

Date: August 2016

Project Title: Cultural Resource Technical Environmental Survey, Rebuild By Design: Resist, Delay, Store, Discharge Project, Cities of Hoboken, Weehawken, and Jersey City, Hudson County, New Jersey

Location: Hoboken, Weehawken, Jersey City, Hudson County, New Jersey

USGS Quads: Jersey, NJ; Weehawken, NJ

Drainage Basin: Hudson River

Level of Survey: Phase IA Archaeological Assessment and Intensive Level Historic Architectural Screening

Project Type: Alternative Analysis in Advance of Installation of Proposed Flood Resistant Structures and Infrastructure Improvements

Cultural Resources: Phase IA Archaeological Assessment determined that there was the potential for prehistoric and historic archaeological resources within the project area. Potential historic archaeological resources included deposits associated with the mid-nineteenth to mid-twentieth century industrial and waterfront development, deposits associated with the mid-nineteenth to early-twentieth century sewer system, and features associated with transportation developments in the mid-nineteenth to mid-twentieth century. With respect to historic architectural resources, the intensive-level study identified 25 previously identified historic properties, including seven National Register-listed properties within the project area. The survey identified 11 previously unidentified historic properties within the project area, including the 3<sup>rd</sup> Street Historic District.

