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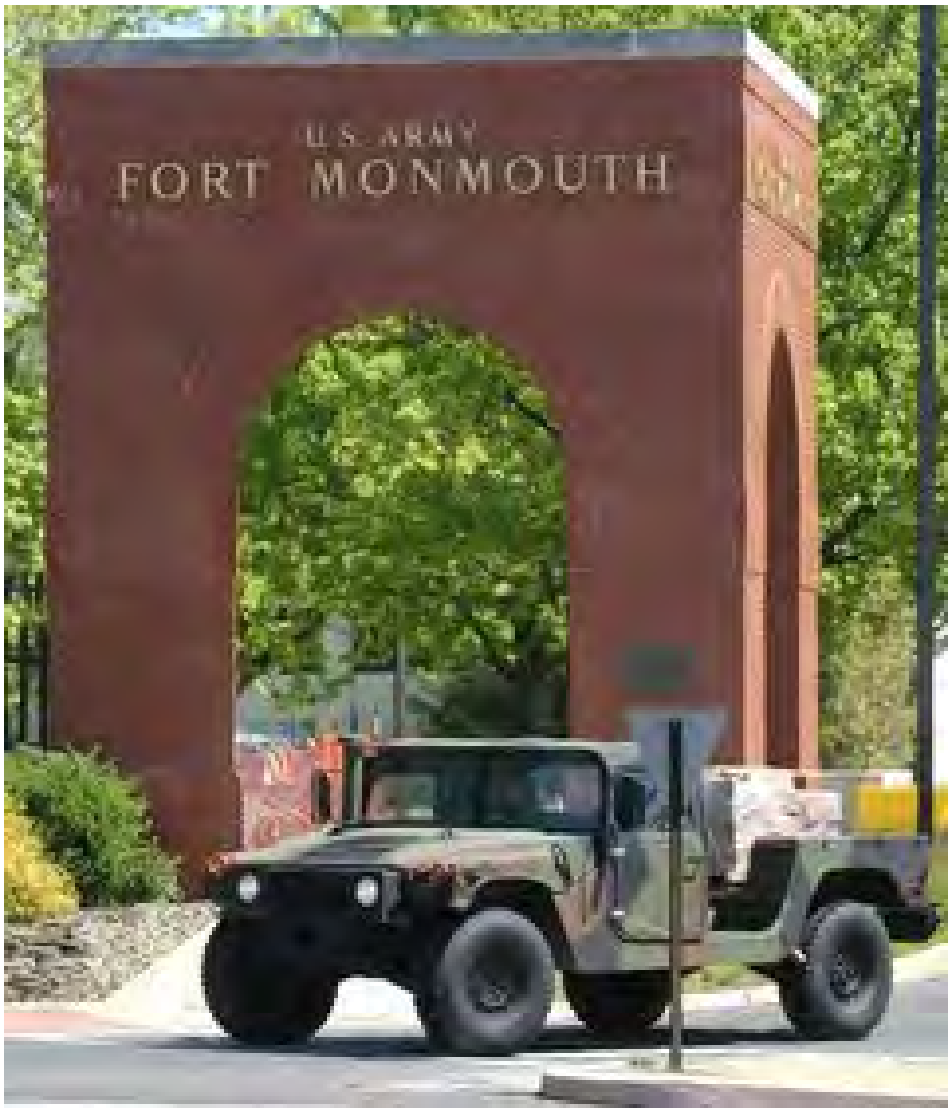

FINAL
ECP PARCEL 57 ROUND 2 WORK PLAN ADDENDUM

FORT MONMOUTH, OCEANPORT, MONMOUTH COUNTY, NEW JERSEY

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ECP Parcel 57 Round 2 Work Plan Addendum

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Attachment	Title
Attachment 1	Parcel 57 Round 1 Boring Logs

1.0 PURPOSE AND SCOPE

The purpose of this Parcel 57 Round 2 Work Plan Addendum is to supplement the initial soil and groundwater sampling and analysis work completed at Parcel 57, as originally proposed in the *Environmental Condition of Property (ECP) Supplemental Phase II Site Investigation (SI) Work Plan for Parcels 28, 28, 29, 49, 57, 61, and 69* (Parsons, 2015; referred to as the ECP Work Plan). Field investigations described in the ECP Work Plan ("Round 1") were conducted from September to November, 2015. Additional soil sampling ("Round 2") is proposed herein to further delineate the horizontal and vertical extent of soil analytes that exceeded the New Jersey Department of Environmental Protection (NJDEP) Residential Direct Contact Soil Remediation Standard (RDCSRS) in Round 1 results. Also, an additional round of metals analysis for groundwater from an expanded list of monitor wells has been proposed to provide additional assessment of groundwater results.

2.0 SITE BACKGROUND

The Parcel 57 site location, history, current and projected land use, and a discussion of previous investigations (prior to 2015) and historical data was provided in the ECP Work Plan (Parsons, 2015) and is not repeated herein. A summary of the soil and groundwater samples previously collected at Parcel 57 in 2010, 2011 and 2015 is provided in **Table 2.1**, and the sample locations are presented in **Figure 1.5**.

3.0 ROUND 1 ANALYTICAL RESULTS

Summary analytical results of the initial Round 1 sampling are provided in **Table 3.1** for soils and **Table 3.3** for groundwater. Boring logs for the Fall 2015 sampling event are provided in **Attachment 1**. A brief summary of the sampling activities and results is presented below.

Soil PAHs Analysis

A total of 44 samples (including two field duplicates) from 17 soil borings at Parcel 57 were analyzed for polycyclic aromatic hydrocarbons (PAHs) in 2015. Target PAH compounds were identified in the ECP WP as those that exceeded the RDCSRS in 2007 and/or 2010 sampling (specifically benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, and benzo[k]fluoranthene). Two additional PAHs, dibenz(a,h)anthracene and indeno(1,2,3-cd)pyrene, were subsequently added to the target list due to one or more RDCSRS exceedances in the initial samples analyzed in 2015.

Soil sampling results for PAHs obtained in 2010 and 2015 are compared to NJDEP criteria in **Table 3.1**. Results of the comparison to NJDEP criteria are also shown on **Figure 3.1**. At least one PAH exceeded its NJDEP RDCSRS in 18 samples collected from 14 borings at depths ranging from 0.0 to 6.0 feet below the base of the asphalt and asphalt base material. Concentrations of the following PAHs exceeded their current NJDEP RDCSRS in at least 1 of the 53 soil samples collected in 2010 and 2015 and analyzed for PAHs (**Tables 3.1**): benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene.

As shown on **Figure 3.1**, the lateral extent of PAHs has not been determined, particularly towards the southern portion of Parcel 57 where up to five PAHs were found in the surface soil samples. Therefore, additional soil sampling with analysis for PAHs is warranted. **Figure 3.1** also demonstrates that the vertical extent of PAHs has been determined within the study area.

Soil PCBs Analysis

In order to characterize potential polychlorinated biphenyls (PCBs) contamination at Parcel 57, eight surface soil samples located along the former railroad tracks were collected and analyzed for PCBs (**Table 2.1**). These eight locations include PAR-57-SS-01 through PAR-57-SS-08 (**Figure 1.5**). Surface soil samples at these locations were collected from the 0.5- to 1.5-foot interval below the asphalt and asphalt base material. Contingent samples from approximately 2 to 2.5 feet and 3 to 3.5 feet below the asphalt and asphalt base material were also collected and submitted to the laboratory for PCB analysis; however, the deeper samples were only analyzed if PCBs were detected above the RDCSRS of 0.2 milligram per kilogram (mg/kg) in the shallow (0.5- to 1.5-foot) sample. A total of 10 soil samples for PCB analysis were collected from eight borings in 2015.

The PCBs Aroclor-1254 and Aroclor-1260 were detected at only one of the eight sampling locations along the former railroad track (**Table 3.1**, **Figure 3.2**). Concentrations of Aroclor-1254 and/or Aroclor-1260 in soil samples from all three depth intervals at boring PAR-57-SS-04 exceeded the NJDEP RDCSRS, and the concentration of Aroclor-1254 in soil from the deepest interval (3.0-3.5 feet) also exceeded the NJDEP Non- Residential Direct Contact Soil Remediation Standard (NRDCSRS). The total PCB concentration in the deepest sample was more than one order of magnitude higher than the concentration in the two shallower samples at boring PAR-57-SS-04.

Additional SI field work was recommended to determine the vertical extent of NJDEP RDCSRS exceedances of Aroclor-1254 and Aroclor-1260. Additional soil samples were also recommended for PCB analysis at step-out locations surrounding PAR-57-SS-04 (perpendicular and parallel to the former railroad tracks) to further refine the lateral extent of RDCSRS and NRDCSRS exceedances. These additional horizontal and vertical data can provide additional delineation in the event that a possible PCB removal action is recommended for this area.

Groundwater Metals Analysis

Two permanent monitoring wells (PAR-57-MW01 and PAR-57-MW02) were installed to a depth of 20 feet bgs and sampled at Parcel 57 where metal concentrations in groundwater samples from temporary wells collected in 2007 and 2010 exceeded the NJDEP Ground Water Quality Standards (GWQS) as described in the ECP WP (Parsons, 2015); well locations are shown on **Figure 3.1**. These wells were developed prior to sampling by a combination of pumping and surging in accordance with the procedure outlined in the *NJDEP Field Sampling Procedures Manual* (NJDEP, 2005). Geologic logs, well construction information, and well development/sampling forms are included in **Attachment 1**. The geologic log for PAR-57-MW02 is labeled FTMM-57-SS-24 because the two borings were co-located. Following development, these two wells were sampled for target analyte list (TAL) metals (unfiltered for total, and filtered for dissolved) using low-flow, minimal-drawdown procedures to minimize turbidity.

Detected concentrations of select metals exceeded the NJDEP GWQS at these wells (**Table 3.3**). Total aluminum, and total and dissolved arsenic, iron, and manganese concentrations exceeded the NJDEP GWQS at monitor well PAR-57-MW01. Total and dissolved aluminum, arsenic, beryllium, cadmium, cobalt, iron, manganese, nickel, and sodium concentrations exceeded the NJDEP GWQS at monitor well PAR-57-MW02. Total and dissolved metals concentrations in well PAR-57-MW02 were generally higher than at PAR-57-MW01.

Some Parcel 57 groundwater exceedances could be associated with upgradient groundwater quality conditions. Glauconitic soil present at wells PAR-57-MW01 and –MW02 could also contribute to higher metal concentrations in groundwater at these Parcel 57 well locations. Based on the data collected during the Phase II SI, one additional round of groundwater monitoring is recommended to fill data gaps. An additional round of groundwater samples from Parcel 57 wells 800MW01, 800MW02, PAR-57-MW01, and PAR-57-MW02 and upgradient wells 886MW02 and 812MW14 is recommended using the low-flow, minimal disturbance method. However, based on results to date there is no clear evidence of a metals release from Parcel 57, and instead groundwater metals results may be influenced by upgradient groundwater quality, natural glauconitic soils and/or fill used throughout this area during initial infrastructure development at FTMM. This concept will be taken into consideration when interpreting the results of the additional investigation work.

4.0 FIELD INVESTIGATION PLAN

Proposed Round 2 sampling is summarized in **Table 4**, and sample locations are shown on **Figure 4**.

Additional Soil PAHs Analysis

A total of 10 additional soil borings are planned to delineate the horizontal extent of PAHs in soils at Parcel 57, as shown on **Figure 4**. The field team will note fill material as well as the presence of materials other than soil, such as coal, asphalt, or debris.

Each soil boring will be drilled to 8 feet below ground surface (ft bgs), and three soil samples will be collected from each boring. Soil sample depth intervals will be similar to the Fall 2015 field effort, and will be collected from 0 to 0.5 ft bgs (below pavement or base course material if present), 3.5 to 4.0 ft bgs, and 7.5 to 8.0 ft bgs. Total boring depth and specific sample intervals may be adjusted in the field to better characterize fill material, if encountered. In general, the soil sample depths will be distributed to characterize soils within and below fill materials, if encountered. Soil samples will be analyzed for five PAHs (benzo[a]anthracene, benzo[a]pyrene, benzo[b]fluoranthene, dibenz[a,h]anthracene, and indeno[1,2,3-cd]pyrene only) by Method 8270 using selective ion monitoring (SIM) mode.

Samples from the four soil borings along the southern edge of the study area (PAR-57-SS-32, PAR-57-SS-33, PAR-57-SS-34, and PAR-57-SS-35) will be held at the laboratory for contingency PAH (five only) analysis, to be analyzed in the event that these samples are needed to delineate the five PAHs in other soil borings to within the RDCSRS.

Additional Soil PCBs Analysis

A total of 9 additional soil borings are planned to delineate the horizontal and vertical extent of PCBs from the previous SS-04 soil boring location, as shown on **Figure 4**. This delineation is being conducted to support a potential PCB soil removal or other mitigating action. These soil borings are located at the previous SS-04 boring location, and at 25-ft offsets from SS-04 along the former railroad tracks, and along a transect that is perpendicular to the former railroad tracks, as shown on **Figure 4.** The field team will note fill material as well as the presence of materials other than soil, such as coal, asphalt, or debris. Concrete was previously observed in the SS-04 soil boring, and was located immediately below the soil sample with the highest PCB concentrations located at 3 to 3.5 ft bgs.

The field sampling design includes 8-ft deep borings (measured below pavement and base course material) and collection of four soil samples generally representing each 2 ft depth interval (0 to 2 ft, 2 to 4 ft, 4 to 6 ft, and 6 to 8 ft bgs). By default, the specific soil sample depth intervals will be from 0.5 to 1.0 ft bgs (measured below pavement or base course material), 2.5 to 3.0 ft bgs, 4.5 to 5.0 ft bgs, and 6.5 to 7.0 ft bgs. These specific sample depth intervals may be adjusted based on field observations at each boring; for example, soil samples will be collected both above and below subsurface concrete, if found. All samples will be analyzed for PCBs (Aroclor-1254 and Aroclor-1260 only) by Method 8081B.

Specific sample depth intervals and plans for contingency analysis are described for each boring as specified below:

- Boring PAR-57-SS-36 (**Figure 4**) will be located at or near the previous PAR-57-SS-04 soil boring, and will be used to sample below the 3.0 to 3.5 ft bgs sample interval collected previously, where the highest concentrations of PCBs were encountered. Soil samples will not be collected from 0.5 to 1.0 ft bgs or 2.5 to 3.0 ft bgs since these intervals were previously characterized. The 4 to 4.5 ft bgs sample interval, or the soil interval underlying the concrete observed at 3.5 to 4.0 ft bgs, will be analyzed for Aroclor-1254 and Aroclor-1260 only. The 6.5 to 7.0 ft bgs sample will be held by the laboratory for contingency analysis, and will be analyzed if the overlying sample interval exceeds the 0.2 mg/kg RDCSRS for PCBs.
- Borings PAR-57-SS-37, -38, -39, and -40 are offset 25 ft from the previous boring PAR-57-SS-04 (**Figure 4**). For these borings, the soil sample depth intervals from 0.5 to 1.0 ft bgs (measured below pavement or base course material), 2.5 to 3.0 ft bgs, and 4.5 to 5.0 ft bgs will be analyzed for Aroclor-1254 and Aroclor-1260 only to provide comparable sample depth coverage as borings PAR-57-SS-04 and -36. The 6.5 to 7.0 ft bgs samples from each of these borings will be held by the laboratory for contingency analysis, and will be analyzed if the respective overlying sample interval exceeds the 0.2 mg/kg RDCSRS for PCBs.
- Borings PAR-57-SS-41, -42, -43, and -44 are offset 50 ft from the previous boring PAR-57-SS-04. For these borings, the soil sample depth intervals 0.5 to 1.0 ft bgs (measured below pavement or base course material), 2.5 to 3.0 ft bgs, 4.5 to 5.0 ft bgs, and 6.5 to 7.0 ft bgs will be collected, and held by the laboratory for contingency analysis. Samples will be analyzed as warranted if the adjacent soil

boring analyses exceed the 0.2 mg/kg RDCSRS for either of the two PCB Aroclors.

Additional Groundwater Metals Analysis

An additional round of groundwater samples from Parcel 57 wells 800MW01, 800MW02, PAR-57-MW01, and PAR-57-MW02 and upgradient wells 886MW02 and 812MW14 is proposed using the low-flow, minimal disturbance method. These groundwater samples will be analyzed for total (unfiltered) and dissolved (filtered) TAL metals, which includes the specific analytes that exceeded GWQSs in previous samples. Based on results to date, there is no clear evidence of a metals release at Parcel 57, and instead groundwater metals results may be influenced by upgradient groundwater quality, natural glauconitic soils and/or fill used throughout this area during initial infrastructure development at FTMM. This concept will be taken into consideration when interpreting the results of the additional round of sampling.

5.0 REPORTING

Reporting of the work conducted at Parcel 57 during the initial field event and the work proposed in this Round 2 work plan will be provided as a Supplemental SI Report for Parcel 57.

6.0 REFERENCES CITED

New Jersey Department of Environmental Protection (NJDEP), 2005. *NJDEP Field Sampling Procedures Manual*. August.

Parsons, 2015. *Environmental Condition of Property Supplemental Phase II Site Investigation Work Plan for Parcels 28, 38, 39, 49, 57, 61, and 69, Fort Monmouth, Oceanport, Monmouth County, New Jersey*. Final Revision 1. November.

TABLES

Table 2.1 ECP Phase II Site Investigation Sample and Analytical Summary

Table 3.1 Detected Soil Sampling Results - Comparison to New Jersey Direct Contact Criteria

Table 3.3 Groundwater Sampling Results - Comparison to Potable Water Criteria and Background Values

Table 4 Proposed Round 2 Sampling Summary for Parcel 57

TABLE 2.1
ECP PHASE II SITE INVESTIGATION SAMPLE AND ANALYTICAL SUMMARY
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Media	Type	Sample Identification	Sample Type	Sample Date	Sample Depth Top	Sample Depth Bottom	VO+ TICs	SVO+ TICs	Total Metals	Dissolved Metals	PAHs	PCBs
2010-2011 Sampling (U.S. Army)												
Soil	Geoprobe	P57-SS-A1-1.0-1.5	Primary Sample	01-Feb-10	1	1.5	--	--	--	--	X	--
Soil	Geoprobe	P57-SS-A1-1.5-2.0	Primary Sample	01-Feb-10	1.5	2	--	--	--	--	X	--
Soil	Geoprobe	P57-SS-C5-1.0-1.5	Primary Sample	01-Feb-10	1	1.5	--	--	--	--	X	--
Soil	Geoprobe	P57-SS-C5-1.5-2.0	Primary Sample	01-Feb-10	1.5	2	--	--	--	--	X	--
Soil	Geoprobe	P57-SS-A1-A-6.5-7.0	Primary Sample	22-Nov-10	6.5	7	--	X	--	--	--	--
Soil	Geoprobe	P57-SS-A1-B-6.5-7.0	Primary Sample	22-Nov-10	6.5	7	--	X	--	--	--	--
Soil	Geoprobe	P57-SS-A1-C-8.0-8.5	Primary Sample	22-Nov-10	8	8.5	--	X	--	--	--	--
Soil	Geoprobe	P57-SS-A1-D-6.0-6.5	Primary Sample	22-Nov-10	6	6.5	--	X	--	--	--	--
Soil	Geoprobe	P57-SS-A1-E-5.5-6.0	Primary Sample	22-Nov-10	5.5	6	--	X	--	--	--	--
Groundwater	Temporary Well	PAR57-GW-57-TMP-A-5	Primary Sample	02-Apr-10	NA	NA	--	--	X*	X*	--	--
Groundwater	Temporary Well	PAR57-GW-57-TMP-A-7	Primary Sample	11-Mar-10	NA	NA	--	--	X*	X*	--	--
Groundwater	Temporary Well	PAR57-GW-57-TMP-A-9	Primary Sample	10-Mar-10	NA	NA	--	--	X**	X**	--	--
Groundwater	Monitoring Well	PAR57-GW-800MW02	Primary Sample	04-Feb-11	5	20	X	X	X	--	--	--
Groundwater	Monitoring Well	PAR57-GW-800MW02-Dup	Duplicate of PAR-57-GW-800MW02	04-Feb-11	5	20	X	X	X	--	--	--
2015 ECP Phase II Sampling (Parsons)												
Soil	Geoprobe	FTMM-57-SS01-0.5-1.0	Primary Sample	18-Sep-15	0.5	1	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS02-1.3-1.8	Primary Sample	18-Sep-15	1.3	1.8	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS03-0.5-1.0	Primary Sample	18-Sep-15	0.5	1	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS04-1.0-1.5	Primary Sample	18-Sep-15	1	1.5	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS04-2.0-2.5	Primary Sample	18-Sep-15	2	2.5	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS04-3.0-3.5	Primary Sample	18-Sep-15	3	3.5	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS05-0.5-1.0	Primary Sample	18-Sep-15	0.5	1	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS06-0.5-1.0	Primary Sample	18-Sep-15	0.5	1	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS07-0.5-1.0	Primary Sample	18-Sep-15	0.5	1	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS08-0.9-1.4	Primary Sample	21-Sep-15	0.9	1.4	--	--	--	--	--	X
Soil	Geoprobe	FTMM-57-SS09-0.5-1.0	Primary Sample	01-Oct-15	0.5	1	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS09-2.0-2.5	Primary Sample	01-Oct-15	2	2.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS09-5.5-6.0	Primary Sample	01-Oct-15	5.5	6	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS10-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS10-3.0-3.5	Primary Sample	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS10-7.0-7.5	Primary Sample	01-Oct-15	7	7.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS11-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS111-3.0-3.5	Duplicate of FTMM-57-SS11-3.0-3.5	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS112-0.0-0.5	Duplicate of FTMM-57-SS12-0.0-0.5	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS11-3.0-3.5	Primary Sample	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS11-7.0-7.5	Primary Sample	01-Oct-15	7	7.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS12-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS12-3.0-3.5	Primary Sample	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS12-7.0-7.5	Primary Sample	01-Oct-15	7	7.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS13-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS13-3.0-3.5	Primary Sample	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS13-6.5-7.0	Primary Sample	01-Oct-15	6.5	7	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS14-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS14-3.0-3.5	Primary Sample	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS14-5.0-5.5	Primary Sample	01-Oct-15	5	5.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS15-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS15-3.0-3.5	Primary Sample	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS15-5.5-6.0	Primary Sample	01-Oct-15	5.5	6	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS16-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--

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SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Media	Type	Sample Identification	Sample Type	Sample Date	Sample Depth Top	Sample Depth Bottom	VO+ TICs	SVO+ TICs	Total Metals	Dissolved Metals	PAHs	PCBs
Soil	Geoprobe	FTMM-57-SS16-1.5-2.0	Primary Sample	01-Oct-15	1.5	2	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS16-6.0-6.5	Primary Sample	01-Oct-15	6	6.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS17-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS17-3.0-3.5	Primary Sample	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS17-5.5-6.0	Primary Sample	01-Oct-15	5.5	6	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS18-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS18-5.0-5.5	Primary Sample	01-Oct-15	5	5.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS19-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS19-5.5-6.0	Primary Sample	01-Oct-15	5.5	6	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS20-0.0-0.5	Primary Sample	01-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS20-3.0-3.5	Primary Sample	01-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS20-5.0-5.5	Primary Sample	01-Oct-15	5	5.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS21-0.0-0.5	Primary Sample	02-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS21-3.0-3.5	Primary Sample	02-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS22-0.0-0.5	Primary Sample	02-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS22-3.0-3.5	Primary Sample	02-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS23-0.0-0.5	Primary Sample	02-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS23-3.0-3.5	Primary Sample	02-Oct-15	3	3.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS24-0.0-0.5	Primary Sample	02-Oct-15	0	0.5	--	--	--	--	X***	--
Soil	Geoprobe	FTMM-57-SS25-0.0-0.5	Primary Sample	02-Oct-15	0	0.5	--	--	--	--	X***	--
Groundwater	Monitoring Well / LFPS	PAR57-GW-MW01-15.1	Primary Sample	23-Nov-15	pump tubing set at 15.1		--	--	X	X	--	--
Groundwater	Monitoring Well / LFPS	PAR57-GW-MW01-15.1 DISSOLVED	Primary Sample	23-Nov-15	pump tubing set at 15.1		--	--	X	X	--	--
Groundwater	Monitoring Well / LFPS	PAR57-GW-MW101-15.1	Duplicate of PAR57-GW-MW01-15.1	23-Nov-15	pump tubing set at 15.1		--	--	X	X	--	--
Groundwater	Monitoring Well / LFPS	PAR57-GW-MW101-15.1 DISSOLVED	Duplicate of PAR57-GW-MW01-15.1 DISSOLVED	23-Nov-15	pump tubing set at 15.1		--	--	X	X	--	--
Groundwater	Monitoring Well / LFPS	PAR57-GW-MW02-15.25	Primary Sample	24-Nov-15	pump tubing set at 15.25		--	--	X	X	--	--
Groundwater	Monitoring Well / LFPS	PAR57-GW-MW02-15.25 DISSOLVED	Primary Sample	24-Nov-15	pump tubing set at 15.25		--	--	X	X	--	--
Groundwater	Monitoring Well / LFPS	PAR57-GW-MW02-20.25	Primary Sample	24-Nov-15	pump tubing set at 20.25		--	--	X	X	--	--
Groundwater	Monitoring Well / LFPS	PAR57-GW-MW02-20.25 DISSOLVED	Primary Sample	24-Nov-15	pump tubing set at 20.25		--	--	X	X	--	--

Notes:
1) VO+TICs = volatile organics + tentatively identified compounds, SVO = semivolatile organics, PAHs = polycyclic aromatic hydrocarbons, PCBs = polychlorinated biphenyls
2) X* Analyzed for Beryllium and Lead only
3) X** Analyzed for Beryllium, Cadmium, Chromium, Cobalt and Lead only
4) X*** Analyzed for Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenz(a,h)anthracene, Indeno(1,2,3-cd)pyrene only
5) 2010 and 2015 soil sample depths are in feet below ground surface and feet below bottom of asphalt and asphalt base material, respectively
6) Groundwater sample depths, where known, are in feet below top of casing
7) LFPS = low flow purge and sample method

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY
DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	P57-C5		P57-A1-A		
Sample ID				P57-SS-C5-1.0-1.5	P57-SS-C5-1.5-2.0	P57-SS-A1-1.0-1.5	P57-SS-A1-1.5-2.0	P57-SS-A1-A-6.5-7.0
Sample Date				2/1/2010	2/1/2010	2/1/2010	2/1/2010	11/22/2010
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	< 0.57	< 0.54	**1.45**	< 0.54	< 0.62
Benzo(a)anthracene	0.6	2	0.8	< 0.57	< 0.54	**0.72**	< 0.54	< 0.62
Benzo(a)pyrene	0.2	0.2	0.2	< 0.57	< 0.54	**0.77**	< 0.54	< 0.62
Benzo(b)fluoranthene	0.6	2	2	< 0.57	< 0.54	**1.54**	< 0.54	< 0.62
Benzo(k)fluoranthene	6	23	25	< 0.57	< 0.54	NA J	< 0.54	< 0.62
Chrysene	62	230	80	< 0.57	< 0.54	**0.95**	< 0.54	< 0.62
Dibenz(a,h)anthracene	0.2	0.2	0.8	< 0.57	< 0.54	< 0.55	< 0.54	< 0.62
Fluoranthene	2,300	24,000	1,300	< 0.57	< 0.54	**1.16**	< 0.54	< 0.62
Fluorene	2,300	24,000	170	< 0.57	< 0.54	**0.55**	< 0.54	< 0.62
Indeno(1,2,3-cd)pyrene	0.6	2	7	< 0.57	< 0.54	NA J	< 0.54	< 0.62
Naphthalene	6	17	25	< 0.57	< 0.54	**0.99**	< 0.54	< 0.62
Phenanthrene	NLE	300,000	NLE	< 0.57	**0.49 J**	**0.9**	< 0.54	< 0.62
Pyrene	1,700	18,000	840	< 0.57	**0.83**	**1.37**	< 0.54	< 0.62
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	**41.69 J**	**116.7 J**	**83.6 J**	**59.77 J**	**97.4 J**
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	P57-A1-B	P57-A1-C	P57-A1-D	P57-A1-E	PAR-57-SS-01
Sample ID				P57-SS-A1-B-6.5-7.0	P57-SS-A1-C-8.0-8.5	P57-SS-A1-D-6.0-6.5	P57-SS-A1-E-5.5-6.0	PAR-57-SS-01-0.5-1.0
Sample Date				11/22/2010	11/22/2010	11/22/2010	11/22/2010	9/18/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	< 0.62	< 0.65	< 0.63	< 0.65	NA
Benzo(a)anthracene	0.6	2	0.8	< 0.62	< 0.65	< 0.63	< 0.65	NA
Benzo(a)pyrene	0.2	0.2	0.2	< 0.62	< 0.65	< 0.63	< 0.65	NA
Benzo(b)fluoranthene	0.6	2	2	< 0.62	< 0.65	< 0.63	< 0.65	NA
Benzo(k)fluoranthene	6	23	25	< 0.62	< 0.65	< 0.63	< 0.65	NA
Chrysene	62	230	80	< 0.62	< 0.65	< 0.63	< 0.65	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	< 0.62	< 0.65	< 0.63	< 0.65	NA
Fluoranthene	2,300	24,000	1,300	< 0.62	< 0.65	< 0.63	< 0.65	NA
Fluorene	2,300	24,000	170	< 0.62	< 0.65	< 0.63	< 0.65	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	< 0.62	< 0.65	< 0.63	< 0.65	NA
Naphthalene	6	17	25	< 0.62	< 0.65	< 0.63	< 0.65	NA
Phenanthrene	NLE	300,000	NLE	< 0.62	< 0.65	< 0.63	< 0.65	NA
Pyrene	1,700	18,000	840	< 0.62	< 0.65	< 0.63	< 0.65	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	**114 J**	**91 J**	**110 J**	**99 J**	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	< 0.022 UJ
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	< 0.02 UJ

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-02	PAR-57-SS-03	PAR-57-SS-04		
Sample ID				PAR-57-SS-02-1.3-1.8	PAR-57-SS-03-0.5-1.0	PAR-57-SS-04-1.0-1.5	PAR-57-SS-04-2.0-2.5	PAR-57-SS-04-3.0-3.5
Sample Date				9/18/2015	9/18/2015	9/18/2015	9/18/2015	9/18/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.2	0.2	0.2	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.6	2	2	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	6	23	25	NA	NA	NA	NA	NA
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	NA	NA	NA	NA	NA
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	NA	NA	NA	NA	NA
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	< 0.025 UJ	< 0.022 UJ	**0.35 J**	**0.25**	**8.8**
Aroclor-1260	0.2	1	NLE	< 0.022 UJ	< 0.02 UJ	**0.28 J**	< 0.039	< 2.2

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-05	PAR-57-SS-06	PAR-57-SS-07	PAR-57-SS-08	PAR-57-SS-09
Sample ID				PAR-57-SS-05-0.5-1.0	PAR-57-SS-06-0.5-1.0	PAR-57-SS-07-0.5-1.0	PAR-57-SS-08-0.9-1.4	PAR-57-SS-09-0.5-1.0
Sample Date				9/18/2015	9/18/2015	9/18/2015	9/21/2015	10/1/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	NA	NA	NA	NA	**0.77 J**
Benzo(a)pyrene	0.2	0.2	0.2	NA	NA	NA	NA	**0.88**
Benzo(b)fluoranthene	0.6	2	2	NA	NA	NA	NA	**1.2 J**
Benzo(k)fluoranthene	6	23	25	NA	NA	NA	NA	**0.35 J**
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	NA	NA	NA	NA	**0.29 J**
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	NA	NA	NA	NA	**0.57 J**
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	< 0.13 UJ	< 0.13 UJ	< 0.13 UJ	< 0.023 UJ	NA
Aroclor-1260	0.2	1	NLE	< 0.11 UJ	< 0.12 UJ	< 0.11 UJ	< 0.021 UJ	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-09		PAR-57-SS-10		
Sample ID				PAR-57-SS-09-2.0-2.5	PAR-57-SS-09-5.5-6.0	PAR-57-SS-10-0.0-0.5	PAR-57-SS-10-3.0-3.5	PAR-57-SS-10-7.0-7.5
Sample Date				10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	**0.0023 J**	**10**	**0.27**	**0.0053 J**	< 0.0044
Benzo(a)pyrene	0.2	0.2	0.2	**0.0031 J**	**8**	**0.27**	**0.0049 J**	< 0.0044
Benzo(b)fluoranthene	0.6	2	2	**0.0039 J**	**11**	**0.39**	**0.0058 J**	< 0.0044
Benzo(k)fluoranthene	6	23	25	< 0.0038	**3.3**	**0.12**	**0.0031 J**	< 0.0044
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	< 0.0038	**1.8**	**0.075**	< 0.0044	< 0.0044
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	< 0.0038	**4.5**	**0.2**	**0.0031 J**	< 0.0044
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-11 (SS-111 is a field duplicate of SS-11)				PAR-57-SS-12
Sample ID				PAR-57-SS-11-0.0-0.5	PAR-57-SS-111-3.0-3.5	PAR-57-SS-11-3.0-3.5	PAR-57-SS-11-7.0-7.5	PAR-57-SS-12-0.0-0.5
Sample Date				10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	**0.25 J**	**0.015**	**0.01**	**0.0035 J**	**4.7 J**
Benzo(a)pyrene	0.2	0.2	0.2	**0.21 J**	**0.015**	**0.012**	**0.0039 J**	**3.7 J**
Benzo(b)fluoranthene	0.6	2	2	**0.27 J**	**0.019**	**0.016**	**0.0048 J**	**4.5 J**
Benzo(k)fluoranthene	6	23	25	**0.11 J**	**0.0042 J**	**0.005 J**	< 0.0043	**2 J**
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	**0.056 J**	< 0.0038	< 0.0038	< 0.0043	**0.85 J**
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	**0.14 J**	**0.011**	**0.005 J**	**0.0026 J**	**2.3 J**
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-12 (SS-112 is a field duplicate of SS-12)			PAR-57-SS-13	
Sample ID				PAR-57-SS-112-0.0-0.5	PAR-57-SS-12-3.0-3.5	PAR-57-SS-12-7.0-7.5	PAR-57-SS-13-0.0-0.5	PAR-57-SS-13-3.0-3.5
Sample Date				10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	**0.24 J**	**0.043**	**0.026**	**0.98**	< 0.0039
Benzo(a)pyrene	0.2	0.2	0.2	**0.26 J**	**0.039**	**0.02**	**0.89**	< 0.0039
Benzo(b)fluoranthene	0.6	2	2	**0.37 J**	**0.054**	**0.026**	**1.2**	< 0.0039
Benzo(k)fluoranthene	6	23	25	**0.11 J**	**0.024**	**0.011**	**0.31**	< 0.0039
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	**0.046 J**	**0.01**	< 0.0039	**0.17**	< 0.0039
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	**0.16 J**	**0.023**	**0.0093**	**0.52**	< 0.0039
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY
DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-13	PAR-57-SS-14			PAR-57-SS-15
Sample ID				PAR-57-SS-13-6.5-7.0	PAR-57-SS-14-0.0-0.5	PAR-57-SS-14-3.0-3.5	PAR-57-SS-14-5.0-5.5	PAR-57-SS-15-0.0-0.5
Sample Date				10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	< 0.0041	**1.2**	**0.035**	< 0.0037	**0.066**
Benzo(a)pyrene	0.2	0.2	0.2	< 0.0041	**0.97**	**0.035**	< 0.0037	**0.077**
Benzo(b)fluoranthene	0.6	2	2	< 0.0041	**1.4**	**0.041**	< 0.0037	**0.092**
Benzo(k)fluoranthene	6	23	25	< 0.0041	**0.48**	**0.014**	< 0.0037	**0.019**
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	< 0.0041	**0.19**	**0.012**	< 0.0037	**0.021**
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	< 0.0041	**0.51**	**0.023**	< 0.0037	**0.047**
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-15		PAR-57-SS-16		
Sample ID				PAR-57-SS-15-3.0-3.5	PAR-57-SS-15-5.5-6.0	PAR-57-SS-16-0.0-0.5	PAR-57-SS-16-1.5-2.0	PAR-57-SS-16-6.0-6.5
Sample Date				10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	< 0.0039	**0.034**	**0.81**	**0.2**	< 0.0039
Benzo(a)pyrene	0.2	0.2	0.2	< 0.0039	**0.031**	**0.66**	**0.22**	< 0.0039
Benzo(b)fluoranthene	0.6	2	2	< 0.0039	**0.038**	**1.1**	**0.39**	< 0.0039
Benzo(k)fluoranthene	6	23	25	< 0.0039	**0.016**	**0.28**	< 0.035	< 0.0039
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	< 0.0039	< 0.0036	< 0.038	< 0.035	< 0.0039
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	< 0.0039	**0.023**	**0.44**	< 0.035	< 0.0039
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-17			PAR-57-SS-18	
Sample ID				PAR-57-SS-17-0.0-0.5	PAR-57-SS-17-3.0-3.5	PAR-57-SS-17-5.5-6.0	PAR-57-SS-18-0.0-0.5	PAR-57-SS-18-5.0-5.5
Sample Date				10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	**4.3**	< 0.004	**0.0027 J**	**3.7**	**0.037**
Benzo(a)pyrene	0.2	0.2	0.2	**4.8**	< 0.004	**0.0023 J**	**2.3**	**0.035**
Benzo(b)fluoranthene	0.6	2	2	**6.1**	< 0.004	< 0.0038	**3.8**	**0.049**
Benzo(k)fluoranthene	6	23	25	**2.2**	< 0.004	**0.0046 J**	**1.1**	**0.013**
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	**1.2**	< 0.004	< 0.0038	**0.4**	**0.0068 J**
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	**2.5**	< 0.004	< 0.0038	**1.1**	**0.025**
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY
DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-19		PAR-57-SS-20		
Sample ID				PAR-57-SS-19-0.0-0.5	PAR-57-SS-19-5.5-6.0	PAR-57-SS-20-0.0-0.5	PAR-57-SS-20-3.0-3.5	PAR-57-SS-20-5.0-5.5
Sample Date				10/1/2015	10/1/2015	10/1/2015	10/1/2015	10/1/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	< 0.18	< 0.0045	**0.27**	**0.023**	**0.51**
Benzo(a)pyrene	0.2	0.2	0.2	< 0.18	< 0.0045	**0.3**	**0.013**	**0.27**
Benzo(b)fluoranthene	0.6	2	2	< 0.18	< 0.0045	**0.44**	**0.02**	**0.4**
Benzo(k)fluoranthene	6	23	25	< 0.18	< 0.0045	**0.12**	**0.013**	**0.17**
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	< 0.18	< 0.0045	**0.079**	< 0.0039	< 0.039
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	< 0.18	< 0.0045	**0.2**	**0.011**	**0.21**
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-21		PAR-57-SS-22		PAR-57-SS-23
Sample ID				PAR-57-SS-21-0.0-0.5	PAR-57-SS-21-3.0-3.5	PAR-57-SS-22-0.0-0.5	PAR-57-SS-22-3.0-3.5	PAR-57-SS-23-0.0-0.5
Sample Date				10/2/2015	10/2/2015	10/2/2015	10/2/2015	10/2/2015
Volatile Organic Compounds (mg/kg) (No Detects)								
Semivolatile Organic Compounds (mg/kg)								
2-Methylnaphthalene	230	2,400	8	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	**7.8**	**0.15**	**0.32**	**0.033**	**0.21**
Benzo(a)pyrene	0.2	0.2	0.2	**8.2**	**0.15**	**0.39**	**0.035**	**0.28**
Benzo(b)fluoranthene	0.6	2	2	**11**	**0.2**	**0.53**	**0.048**	**0.4**
Benzo(k)fluoranthene	6	23	25	**3.2**	**0.061**	**0.17**	**0.015**	**0.12**
Chrysene	62	230	80	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	**2.3**	**0.039**	**0.1**	**0.0086**	**0.07**
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	**6**	**0.098**	**0.38**	**0.025**	**0.24**
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
TIC SVOCs (mg/kg)								
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA	NA	NA
PCBs (mg/kg)								
Aroclor-1254	0.2	1	NLE	NA	NA	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Residential Direct Contact SRS	NJ Non-Residential Direct Contact SRS	NJ Impact to GW Soil Screening Level	PAR-57-SS-23	PAR-57-SS-24	PAR-57-SS-25
Sample ID				PAR-57-SS-23-3.0-3.5	PAR-57-SS-24-0.0-0.5	PAR-57-SS-25-0.0-0.5
Sample Date				10/2/2015	10/2/2015	10/2/2015
Volatile Organic Compounds (mg/kg) (No Detects)						
Semivolatile Organic Compounds (mg/kg)						
2-Methylnaphthalene	230	2,400	8	NA	NA	NA
Benzo(a)anthracene	0.6	2	0.8	**0.06**	**0.1**	**0.0076**
Benzo(a)pyrene	0.2	0.2	0.2	**0.059**	**0.1**	**0.0076**
Benzo(b)fluoranthene	0.6	2	2	**0.085**	**0.16**	**0.0087**
Benzo(k)fluoranthene	6	23	25	**0.037**	**0.061**	**0.0018 J**
Chrysene	62	230	80	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	**0.014**	**0.022**	< 0.0036
Fluoranthene	2,300	24,000	1,300	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.6	2	7	**0.037**	**0.072**	**0.0047 J**
Naphthalene	6	17	25	NA	NA	NA
Phenanthrene	NLE	300,000	NLE	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA
TIC SVOCs (mg/kg)						
Total TIC, Semi-Volatile	NLE	NLE	NLE	NA	NA	NA
PCBs (mg/kg)						
Aroclor-1254	0.2	1	NLE	NA	NA	NA
Aroclor-1260	0.2	1	NLE	NA	NA	NA

TABLE 3.1
DETECTED SOIL SAMPLING RESULTS - COMPARISON TO NEW JERSEY DIRECT CONTACT CRITERIA
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Footnotes:
1) All historical data collected prior to 2013 are reported as provided by others
2) mg/kg = milligrams per kilogram
3) NLE = no limit established
4) ND = not detected in any background sample, no background concentration available
5) NA = not analyzed
6) **BOLD** = detected result
7) < = not detected at or above the associated value
8) Chemical result qualifiers are assigned by the laboratory and are evaluated and modified (if necessary) during the data validation.
9) J = estimated detected value due to a concentration below the reporting limit or due to discrepancies in meeting certain analyte-specific quality control criteria
10) < = non-detect, i.e. not detected at or above this value
11) Exceedances of one or more comparison criteria are highlighted as follows:
- Cell Shade indicates result is above the NJ Residential Direct Contact Soil Remediation Standard and (in some cases), the NJ Impact to Ground Water Screening Level
- Cell Shade indicates result is above NJ Residential and Non-Residential Direct Contact Soil Remediation Standards, and (in some cases) the NJ Impact to Ground Water Screening Level

There are no NJDEP soil standards for individual PCB Aroclors, therefore the NJDEP standard for total PCBs was used for individual Aroclors
12) Comparison Criteria source documents and web addresses:
- The NJ Ground Water Quality Criteria refers to the NJDEP Groundwater Quality Standards - Adopted July 22, 2010
  http://www.state.nj.us/dep/wms/bwqsa/docs/njac79C.pdf
- The 2015-16 USEPA RSL Tap Water (HQ=0.1) refers to the USEPA's Region 9 Regional Screening Levels (HQ=0.1) - 5/31/2015 (Last rev)
  http://www.epa.gov/region9/superfund/prg/
- The Weston 1995 Background (Main Post) refers to maximum background values reported in the Weston (1995) Site Investigation Report

TABLE 3.3
GROUNDWATER SAMPLING RESULTS - COMPARISON TO POTABLE WATER CRITERIA AND BACKGROUND VALUES
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	2015-06 USEPA RSL Tap Water (HQ=0.1)	Weston 1995 Background (Main Post)	57-TMP-A-5		57-TMP-A-7		57-TMP-A-9
Sample ID				PAR57-GW-57-TMP-A-5	PAR57-GW-57-TMP-A-5	PAR57-GW-57-TMP-A-7	PAR57-GW-57-TMP-A-7	PAR57-GW-57-TMP-A-9
Sample Date				4/2/2010	4/2/2010	3/11/2010	3/11/2010	3/10/2010
Filtered				Total	Dissolved	Total	Dissolved	Total
Volatile Organic Compounds (µg/l) (No Detects)								
Semivolatile Organic Compounds (µg/l)								
Naphthalene	300	0.17	-	NA	NA	NA	NA	NA
Phenanthrene	100	NLE	-	NA	NA	NA	NA	NA
Inorganics (µg/l)								
Aluminum	200	2,000	121,000	NA	NA	NA	NA	NA
Arsenic	3	0.052	89.3	NA	NA	NA	NA	NA
Barium	6,000	380	699	NA	NA	NA	NA	NA
Beryllium	1	2.5	2.1	**2.85**	< 0.5	**2.81**	< 0.5	**0.459**
Cadmium	4	0.92	9.5	NA	NA	NA	NA	**5.43**
Calcium	NLE	NLE	45,400	NA	NA	NA	NA	NA
Chromium	70	2,200	191	NA	NA	NA	NA	**54.7**
Cobalt	100	0.6	18.3	NA	NA	NA	NA	**53.8**
Copper	1,300	80	65.6	NA	NA	NA	NA	NA
Iron	300	1,400	431,000	NA	NA	NA	NA	NA
Lead	5	15	22.7	**138**	< 5	**43.2**	< 5	**6.74**
Magnesium	NLE	NLE	62,700	NA	NA	NA	NA	NA
Manganese	50	43	331	NA	NA	NA	NA	NA
Mercury	2	0.57	0.26	NA	NA	NA	NA	NA
Nickel	100	39	187	NA	NA	NA	NA	NA
Potassium	NLE	NLE	137,000	NA	NA	NA	NA	NA
Silver	40	9.4	ND	NA	NA	NA	NA	NA
Sodium	50,000	NLE	21,500	NA	NA	NA	NA	NA
Vanadium	NLE	8.6	108	NA	NA	NA	NA	NA
Zinc	2,000	600	233	NA	NA	NA	NA	NA

TABLE 3.3
GROUNDWATER SAMPLING RESULTS - COMPARISON TO POTABLE WATER CRITERIA AND BACKGROUND VALUES
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	2015-06 USEPA RSL Tap Water (HQ=0.1)	Weston 1995 Background (Main Post)	57-TMP-A-9	800MW02		PAR-57-MW01	
Sample ID				PAR57-GW-57-TMP-A-9	PAR57-GW-800MW02	PAR57-GW-800MW02-Dup	PAR57-GW-MW01-15.1	PAR57-GW-MW01-15.1
Sample Date				3/10/2010	2/4/2011	2/4/2011	11/23/2015	11/23/2015
Filtered				Dissolved	Total	Total	Total	Dissolved
Volatile Organic Compounds (µg/l) (No Detects)								
Semivolatile Organic Compounds (µg/l)								
Naphthalene	300	0.17	-	NA	**0.15**	**0.151**	NA	NA
Phenanthrene	100	NLE	-	NA	**0.136**	**0.14**	NA	NA
Inorganics (µg/l)								
Aluminum	200	2,000	121,000	NA	**290**	**300**	**989**	< 50
Arsenic	3	0.052	89.3	NA	**4.1**	**4.1**	**6.7 J**	**8.3 J**
Barium	6,000	380	699	NA	< 200	< 200	**49.8**	**46.9**
Beryllium	1	2.5	2.1	< 0.5	< 1	< 1	< 2.5	< 2.5
Cadmium	4	0.92	9.5	**3.97**	< 3	< 3	< 2.5	< 2.5
Calcium	NLE	NLE	45,400	NA	**13,300**	**13,800**	**169,000**	**191,000**
Chromium	70	2,200	191	NA	< 10	< 10	**8.8 J**	**0.316 J**
Cobalt	100	0.6	18.3	**51.2**	< 50	< 50	< 25	< 25
Copper	1,300	80	65.6	NA	< 10	< 10	< 10	< 10
Iron	300	1,400	431,000	NA	**8,220**	**8,710**	**31,300 J**	**35,200 J**
Lead	5	15	22.7	**2.81**	**3.5**	**3.7**	< 2.5	< 2.5
Magnesium	NLE	NLE	62,700	NA	**5,190**	**5,570**	**12,200 J**	**14,200 J**
Manganese	50	43	331	NA	**172**	**180**	**644 J**	**746 J**
Mercury	2	0.57	0.26	NA	< 0.2	< 0.2	**0.057 J**	**0.049 J**
Nickel	100	39	187	NA	**16**	**16.9**	**2.9 J**	**1.4 J**
Potassium	NLE	NLE	137,000	NA	< 10000	< 10000	**7,450**	**7,970**
Silver	40	9.4	ND	NA	< 10	< 10	**2.8 J**	**3.1 J**
Sodium	50,000	NLE	21,500	NA	**35,600**	**35,500**	**30,400**	**30,700**
Vanadium	NLE	8.6	108	NA	< 50	< 50	**3.2 J**	< 25
Zinc	2,000	600	233	NA	**125**	**130**	**10.2 J**	< 10

TABLE 3.3
GROUNDWATER SAMPLING RESULTS - COMPARISON TO POTABLE WATER CRITERIA AND BACKGROUND VALUES
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	2015-06 USEPA RSL Tap Water (HQ=0.1)	Weston 1995 Background (Main Post)	PAR-57-MW101 (field duplicate of PAR-57-MW01)		PAR-57-MW02	
Sample ID				PAR57-GW-MW101-15.1	PAR57-GW-MW101-15.1	PAR57-GW-MW02-15.25	PAR57-GW-MW02-15.25
Sample Date				11/23/2015	11/23/2015	11/24/2015	11/24/2015
Filtered				Total	Dissolved	Total	Dissolved
Volatile Organic Compounds (µg/l) (No Detects)							
Semivolatile Organic Compounds (µg/l)							
Naphthalene	300	0.17	-	NA	NA	NA	NA
Phenanthrene	100	NLE	-	NA	NA	NA	NA
Inorganics (µg/l)							
Aluminum	200	2,000	121,000	**1,010**	< 50	**12,800**	**9,070**
Arsenic	3	0.052	89.3	**8.7 J**	**6.7 J**	**10.3**	**8.5 J**
Barium	6,000	380	699	**55.7**	**50.6**	**31.6**	**27**
Beryllium	1	2.5	2.1	< 2.5	< 2.5	**7**	**6.2**
Cadmium	4	0.92	9.5	< 2.5	< 2.5	**5.8**	**5.3**
Calcium	NLE	NLE	45,400	**228,000**	**192,000**	**66,900**	**232,000**
Chromium	70	2,200	191	**9 J**	**0.445 J**	**8.2 J**	**1.9 J**
Cobalt	100	0.6	18.3	< 25	< 25	**113**	**111**
Copper	1,300	80	65.6	< 10	< 10	**17 J**	**5.6 J**
Iron	300	1,400	431,000	**35,800 J**	**32,900 J**	**36,600 J**	**30,900 J**
Lead	5	15	22.7	**2.6 J**	< 2.5	< 2.5	< 2.5
Magnesium	NLE	NLE	62,700	**14,300 J**	**13,800 J**	**25,600 J**	**25,000 J**
Manganese	50	43	331	**771 J**	**740 J**	**2,690 J**	**2,560 J**
Mercury	2	0.57	0.26	< 0.1	< 0.1	< 0.1	**0.048 J**
Nickel	100	39	187	**2.6 J**	**1.6 J**	**224**	**222**
Potassium	NLE	NLE	137,000	**8,930**	**8,380**	**6,580**	**6,080**
Silver	40	9.4	ND	**2.5 J**	**2.6 J**	**3.1 J**	**2.8 J**
Sodium	50,000	NLE	21,500	**28,100**	**31,300**	**71,300**	**67,900**
Vanadium	NLE	8.6	108	**3 J**	< 25	**5.6 J**	< 25
Zinc	2,000	600	233	**9.6 J**	**7.2 J**	**851**	**858**

TABLE 3.3
GROUNDWATER SAMPLING RESULTS - COMPARISON TO POTABLE WATER CRITERIA AND BACKGROUND VALUES
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Loc ID	NJ Ground Water Quality Criteria	2015-06 USEPA RSL Tap Water (HQ=0.1)	Weston 1995 Background (Main Post)	PAR-57-MW02	
Sample ID				PAR57-GW-MW02-20.25	PAR57-GW-MW02-20.25
Sample Date				11/24/2015	11/24/2015
Filtered				Total	Dissolved
Volatile Organic Compounds (µg/l) (No Detects)					
Semivolatile Organic Compounds (µg/l)					
Naphthalene	300	0.17	-	NA	NA
Phenanthrene	100	NLE	-	NA	NA
Inorganics (µg/l)					
Aluminum	200	2,000	121,000	**11,400**	**9,230**
Arsenic	3	0.052	89.3	**8.9 J**	**7.8 J**
Barium	6,000	380	699	**27**	**25**
Beryllium	1	2.5	2.1	**6.8**	**6.4**
Cadmium	4	0.92	9.5	**5.2**	**5.1**
Calcium	NLE	NLE	45,400	**63,400**	**65,600**
Chromium	70	2,200	191	**5.3 J**	**1.9 J**
Cobalt	100	0.6	18.3	**103**	**104**
Copper	1,300	80	65.6	**13.5 J**	**5.4 J**
Iron	300	1,400	431,000	**34,000 J**	**31,200 J**
Lead	5	15	22.7	< 2.5	< 2.5
Magnesium	NLE	NLE	62,700	**24,500 J**	**23,700 J**
Manganese	50	43	331	**2,460 J**	**2,420 J**
Mercury	2	0.57	0.26	< 0.1	< 0.1
Nickel	100	39	187	**223**	**219**
Potassium	NLE	NLE	137,000	**6,070**	**5,760**
Silver	40	9.4	ND	**2.5 J**	**2.6 J**
Sodium	50,000	NLE	21,500	**71,400**	**73,100**
Vanadium	NLE	8.6	108	**3 J**	< 25
Zinc	2,000	600	233	**788**	**792**

TABLE 3.3
GROUNDWATER SAMPLING RESULTS - COMPARISON TO USEPA RSLs
SITE INVESTIGATION REPORT ADDENDUM FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Footnotes:
1) All historical data collected prior to 2013 are reported as provided by others
2) µg/L = micrograms per liter
3) NLE = no limit established
4) ND = not detected in any background sample, no background concentration available
5) NA = not analyzed
6) **BOLD** = detected result
7) < = not detected at or above the associated value
8) Chemical result qualifiers are assigned by the laboratory and are evaluated and modified (if necessary) during the data validation.
9) J = estimated detected value due to a concentration below the reporting limit or due to discrepancies in meeting certain analyte-specific quality control criteria
10) < = non-detect, i.e. not detected at or above this value
11) Exceedances of one or more comparison criteria are highlighted as follows:
- Cell Shade represents a result that is above the NJ Ground Water Quality Criterion
- Cell Shade values represent a result that is above the USEPA 2014-05 RSL Tap Water (HQ=0.1)
- Values represent a result that is above the Weston 1995 Maximum Background (Main Post)
- Cell Shade values represent a result that is above both the NJ Ground Water Quality Criterion and USEPA 2015-16 RSL Tap Water (HQ=0.1)
12) Comparison Criteria source documents and web addresses:
- The NJ Ground Water Quality Criteria refers to the NJDEP Groundwater Quality Standards - Adopted July 22, 2010
  http://www.state.nj.us/dep/wms/bwqsa/docs/njac79C.pdf
- The 2015-16 USEPA RSL Tap Water (HQ=0.1) refers to the USEPA's Region 9 Regional Screening Levels (HQ=0.1) - 5/31/2015 (Last rev)
  http://www.epa.gov/region9/superfund/prg/
- The Weston 1995 Background (Main Post) refers to maximum background values reported in the Weston (1995) Site Investigation Report

TABLE 4
PROPOSED ROUND 2 SAMPLING SUMMARY FOR PARCEL 57
FORT MONMOUTH, NEW JERSEY

Parcel	Location	Field Meter Readings [a/]	TAL Metals by Method 6010C [b/]	PAHs by Method 8270 SIM [c/]	PCBs by Method 8081B [d/]
Soil					
57	10 step-out soil borings, 3 samples each for PAHs analysis. Hold select samples for contingency analysis (see text).	10 borings	0	30	0
57	9 step-out soil borings, 4 samples each for PCBs analysis. Hold select samples for contingency analysis (see text).	9 borings	0	0	36
Groundwater					
57	Total (unfiltered) and dissolved (filtered) samples from 6 existing monitor wells 800MW01,800MW02, PAR-57-MW01, PAR-57-MW02, 886MW02 and 812MW14	6	12	0	0
QA/QC samples (see SAP for additional details) [e/]					
Field Duplicates (5% Sampling Frequency per media)		NA	1	2	2
Matrix Spike (5% Sampling Frequency per media)		NA	1	2	2
Matrix Spike Duplicate (5% Sampling Frequency per media)		NA	1	2	2
Trip Blank (1 per cooler of VOCs per media)		NA	0	0	0
QA Split (5% per media)		NA	1	2	2
Equipment Blank (5% Sampling Frequency per media)		NA	1	2	2
	TOTAL	**NA**	**17**	**10**	**46**

Notes:

NA = not applicable.

[a/] Field meter readings include, in soil samples: photoionization detector (PID) readings along entire soil column; and in groundwater: PID headspace, pH, temperature, electrical conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and turbidity.

[b/] Methods for metals in groundwater are 6010C (except Hg) and 7470A (Hg).

[c/] SIM = Selective ion monitoring mode.

[d/] PCBs = polychlorinated biphenyls.

[e/] QA/QC = quality assurance/quality control; SAP = Sampling and Analysis Plan.

FIGURES

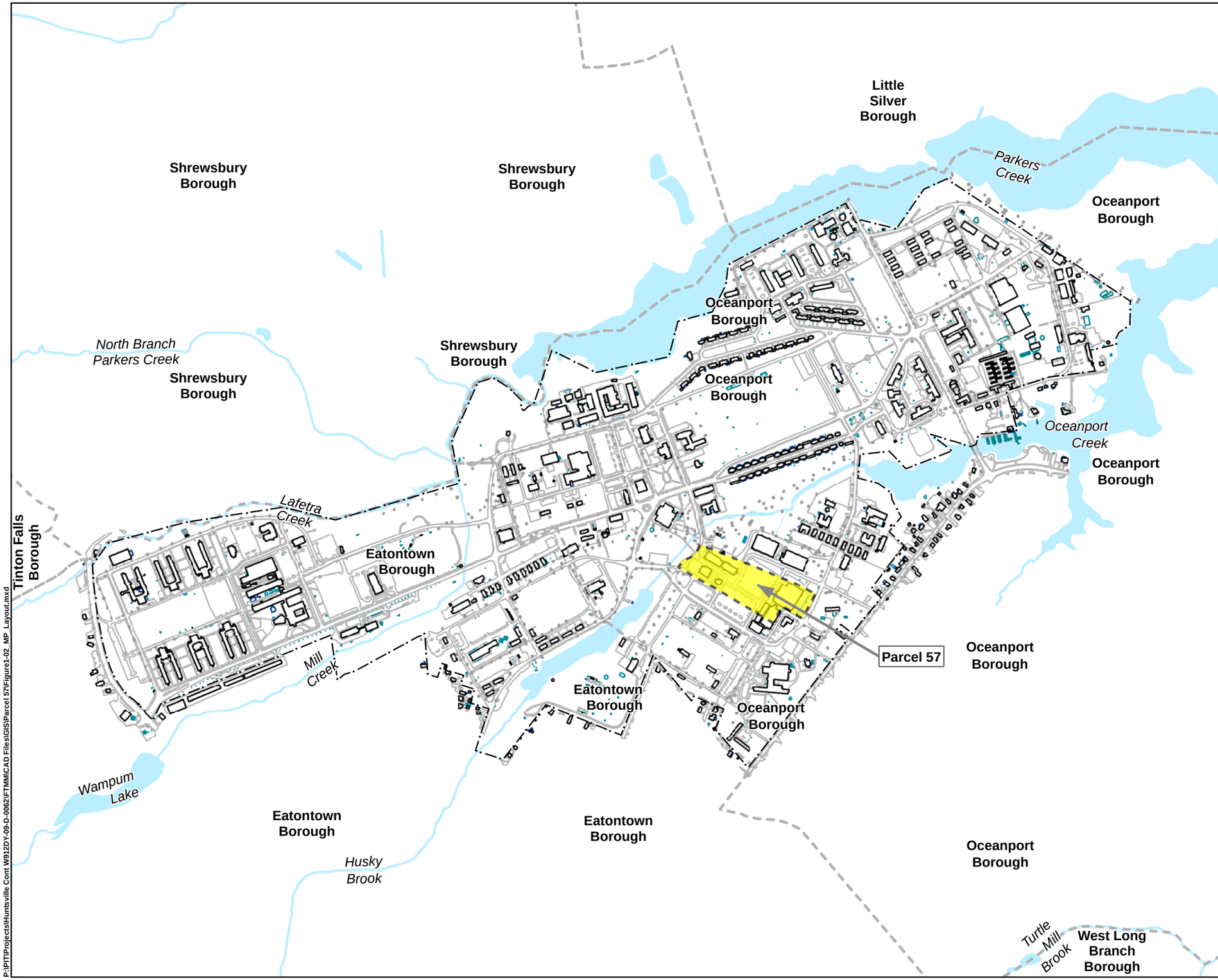
Figure 1.2 Parcel 57 Location

Figure 1.5 Site Layout and Sampling Locations (Round 1)

Figure 3.1 Comparison of 2010 and 2015 Soil Results for PAHs to NJDEP Direct Contact Standards

Figure 3.2 Comparison of 2015 Soil Results for PCBs to NJDEP Direct Contact Standards

Figure 4 Proposed Round 2 Sampling Locations for Parcel 57



LEGEND:

- Parcel Boundary
- Municipal Boundary
- Installation Boundary
- Surface Water Feature

N

1 inch = 1,000 feet

0 500 1,000 2,000 Feet

Source: FTMM Supplied CAD, 2013; U.S. Army BRAC, 2008; ESRI Data and Maps 2011; USGS NHD, 2012.

PARSONS 401 Diamond Drive NW, Huntsville AL	**Fort Monmouth New Jersey**
PARCEL 57 LOCATION	
CREATED BY: **RR**	REVIEWED BY: **RF**
DATE: **DEC. 2015**	FIGURE NUMBER: **FIGURE 1.2**
PROJECT NUMBER: **748810-01000**	FILE: **Figure1-02_MP_Layout.mxd**

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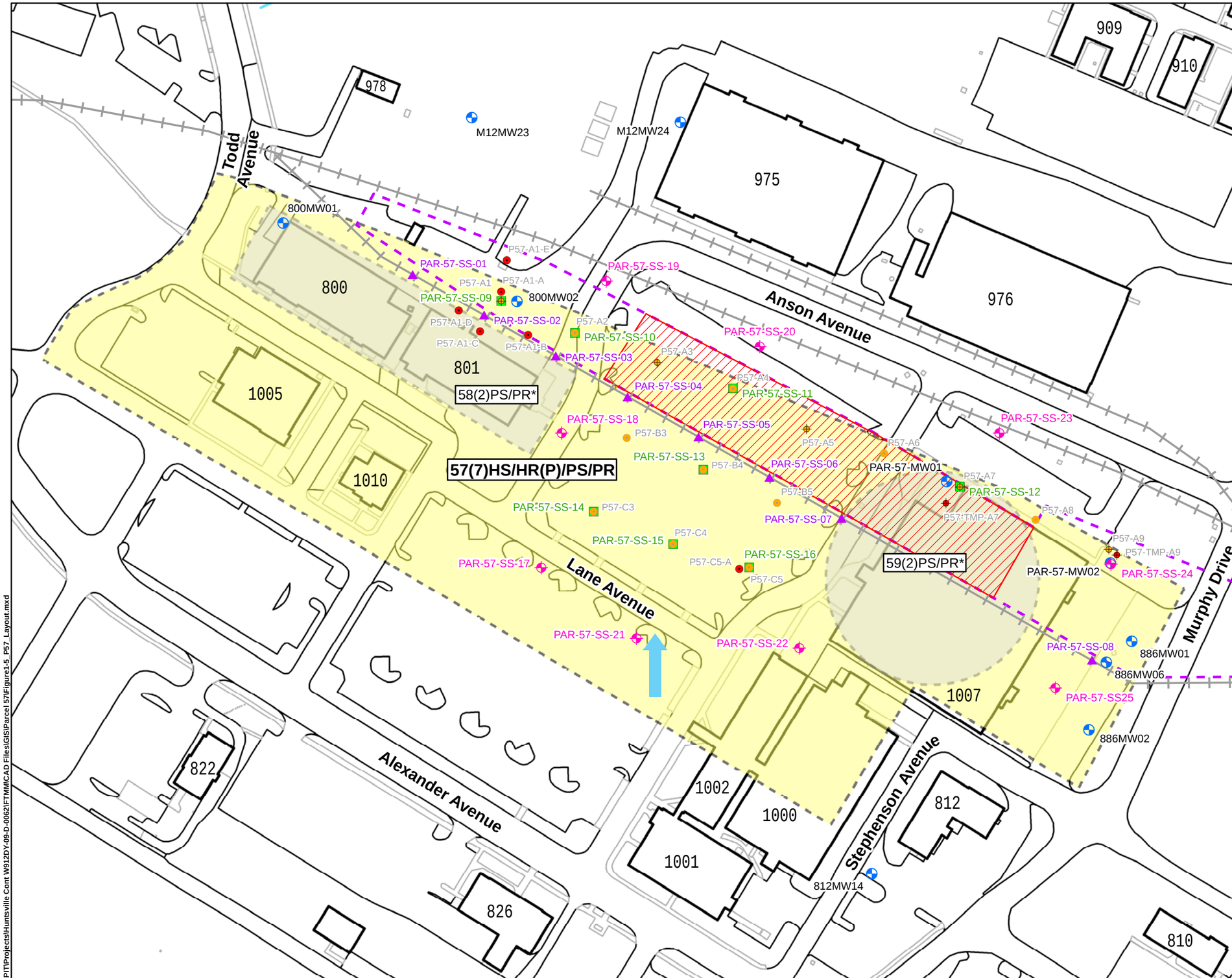

LEGEND:

- Step-out Surface / Subsurface Soil Sample Location (for analysis of select PAHs) (2015)
- Soil Sample Location (2007)
- Soil Sample and Temporary Monitoring Well Location (2007)
- Surface / Subsurface Soil Sample Location (for analysis of select PAHs) (2015)
- Surface Soil Sample Location (for analysis of polychlorinated biphenyls [PCBs]) (2015)
- Soil Sample Location (2010)
- Temporary Monitoring Well (2010)
- Shallow Monitoring Well (various dates)
- Approximate Location of Former Railroad Track (based on 1962 FTMM plan figure)
- Parcel 57 Boundary
- *Parcel not included in Site Investigation
- Approximate Extent of Former Coal Storage Area
- Former Concrete Coal Storage Pad
- Generalized Groundwater Flow Direction

Sample locations are approximate and are subject to change based on field conditions.

BRAC Parcel Label Definitions

8(2)PS
- Contaminant Description
  - HS – Hazardous Substance Storage
  - HR – Hazardous Substance Release
  - PS – Petroleum Storage
  - PR – Petroleum Release
  - (P) – Possible Release or Disposal
- Category Number
- Parcel Number

N

1 inch = 120 feet

0 60 120 240 Feet

Source: FTMM Supplied CAD, 2013; U.S. Army BRAC, 2008.

PARSONS 401 Diamond Drive NW, Huntsville AL	Fort Monmouth New Jersey
SITE LAYOUT AND SAMPLING LOCATIONS	
CREATED BY: RR	REVIEWED BY: RF
DATE: DEC. 2015	FIGURE NUMBER: FIGURE 1.5
PROJECT NUMBER: 748810-06018	FILE: Figure1-5_P57_Layout.mxd

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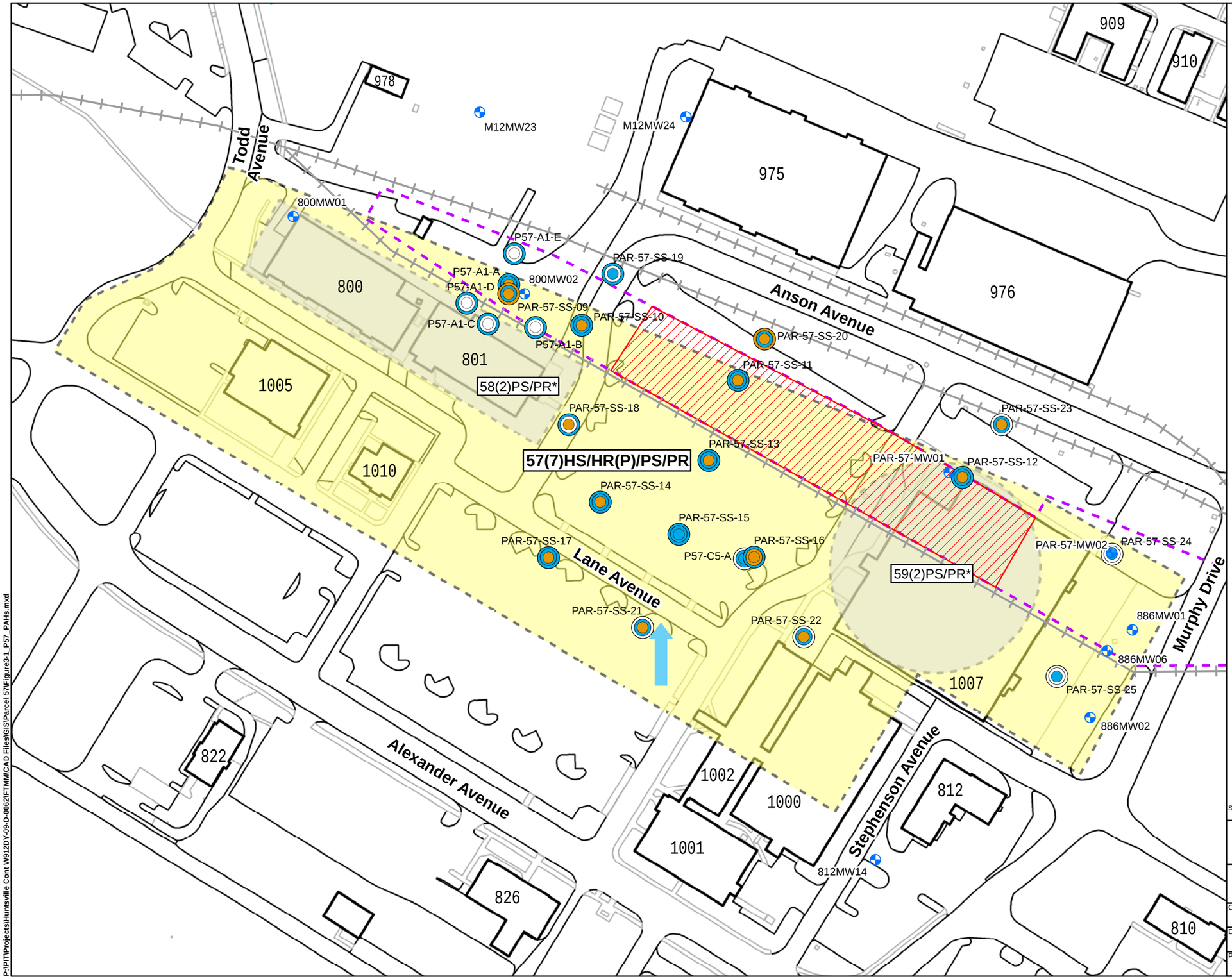

LEGEND:

- Shallow Monitoring Well
- Parcel 57 Boundary
- Approximate Location of Former Railroad Track (based on 1962 FTMM plan figure)
- *Parcel not included in Site Investigation
- Approximate Extent of Former Coal Storage Area
- Concrete Coal Storage Pad (removed)
- Generalized Groundwater Flow Direction
- Not analyzed for PAHs
- PAHs not detected or detected below RDCSRS
- PAHs exceeded RDCSRS
- PAHs exceeded both RDCSRS and NRDCSRS
- Water Table (approx. 5-7.5 ft. bgs)
- Intermediate (approx. 2-3.5 ft. bgs)
- Near Surface (approx. 0-1 ft. bgs)

NOTES:

RDCSRS = Residential Direct Contact Soil Remediation Standard

NRDCSRS = Non-Residential Direct Contact Soil Remediation Standard

bgs = Below Ground Surface

BRAC Parcel Label Definitions

8(2)PS
- Contaminant Description
  - HS – Hazardous Substance Storage
  - HR – Hazardous Substance Release
  - PS – Petroleum Storage
  - PR – Petroleum Release
  - (P) – Possible Release or Disposal
- Category Number
- Parcel Number

N

1 inch = 120 feet

0 60 120 240 Feet

Source: FTMM Supplied CAD, 2013; U.S. Army BRAC, 2008.

PARSONS 401 Diamond Drive NW, Huntsville AL	Fort Monmouth New Jersey

COMPARISON OF 2010 AND 2015 SOIL RESULTS FOR PAHs TO NJDEP DIRECT CONTACT STANDARDS

CREATED BY: RR	REVIEWED BY: RF
DATE: DEC. 2015	FIGURE NUMBER: FIGURE 3.1
PROJECT NUMBER: 748810-06018	FILE: Figure3-1_P57_PAHs.mxd

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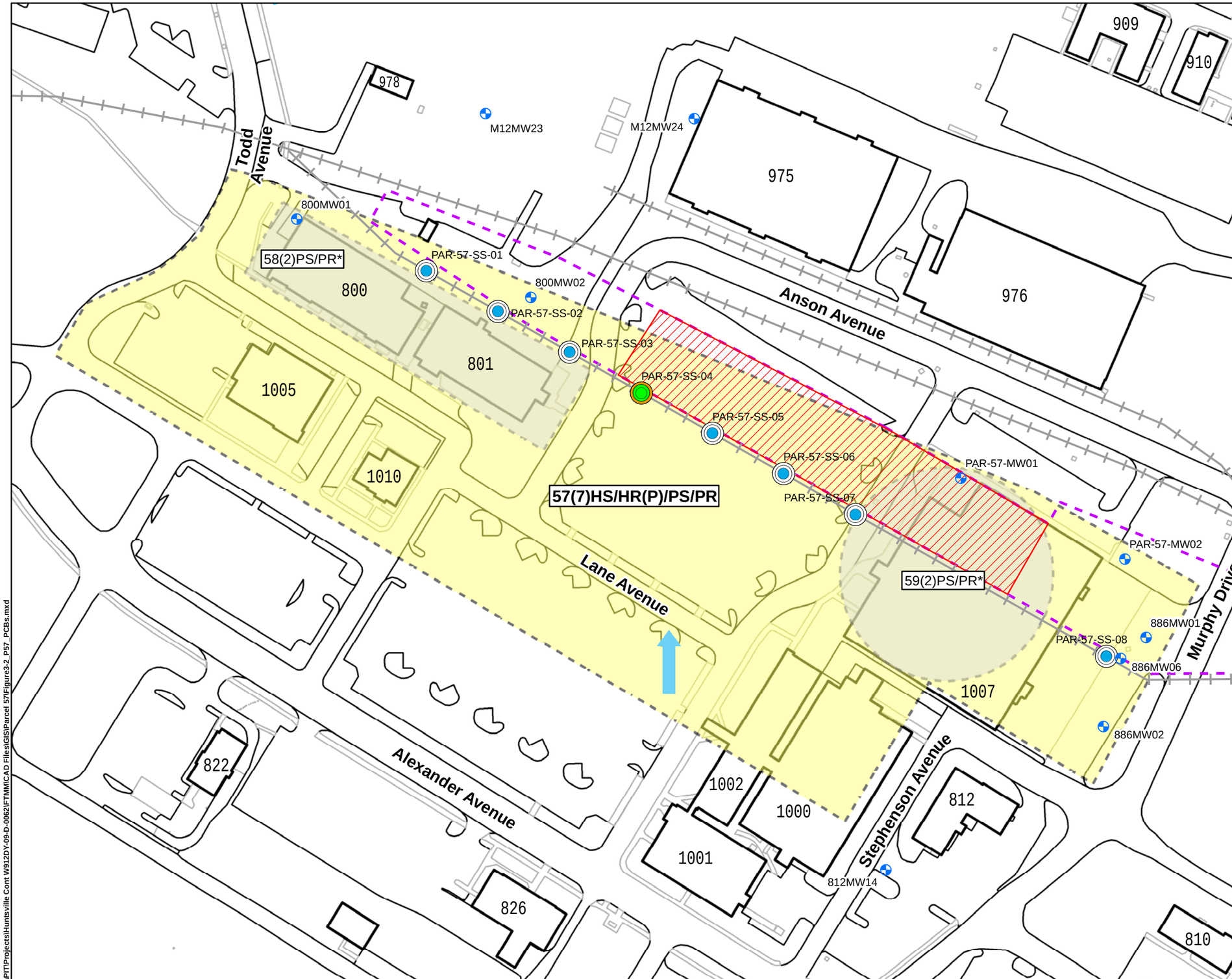

LEGEND:

- Shallow Monitoring Well
- Approximate Location of Former Railroad Track (based on 1962 FTMM plan figure)
- Parcel 57 Boundary
- *Parcel not included in Site Investigation
- Approximate Extent of Former Coal Storage Area
- Concrete Coal Storage Pad (removed)
- Generalized Groundwater Flow Direction
- Not analyzed for PCBs
- PCBs not detected or detected below RDCSRS
- PCBs exceeded RDCSRS
- PCBs exceeded both RDCSRS and NRDCSRS
- Deep (approx. 3-3.5 ft. bgs)
- Intermediate (approx. 2-2.5 ft. bgs)
- Near Surface (approx. 0.5-1.5 ft. bgs)

NOTES:

RDCSRS = Residential Direct Contact Soil Remediation Standard

NRDCSRS = Non-Residential Direct Contact Soil Remediation Standard

bgs = Below Ground Surface

BRAC Parcel Label Definitions

8(2)PS
- Contaminant Description
  - HS – Hazardous Substance Storage
  - HR – Hazardous Substance Release
  - PS – Petroleum Storage
  - PR – Petroleum Release
  - (P) – Possible Release or Disposal
- Category Number
- Parcel Number

N

1 inch = 120 feet

0 60 120 240 Feet

Source: FTMM Supplied CAD, 2013; U.S. Army BRAC, 2008.

PARSONS 401 Diamond Drive NW, Huntsville AL	Fort Monmouth New Jersey

COMPARISON OF 2015 SOIL RESULTS FOR PCBs TO NJDEP DIRECT CONTACT STANDARDS

CREATED BY: RR	REVIEWED BY: RF
DATE: DEC. 2015	FIGURE NUMBER: FIGURE 3.2
PROJECT NUMBER: 748810-06018	FILE: Figure3-2_P57_PCBs.mxd

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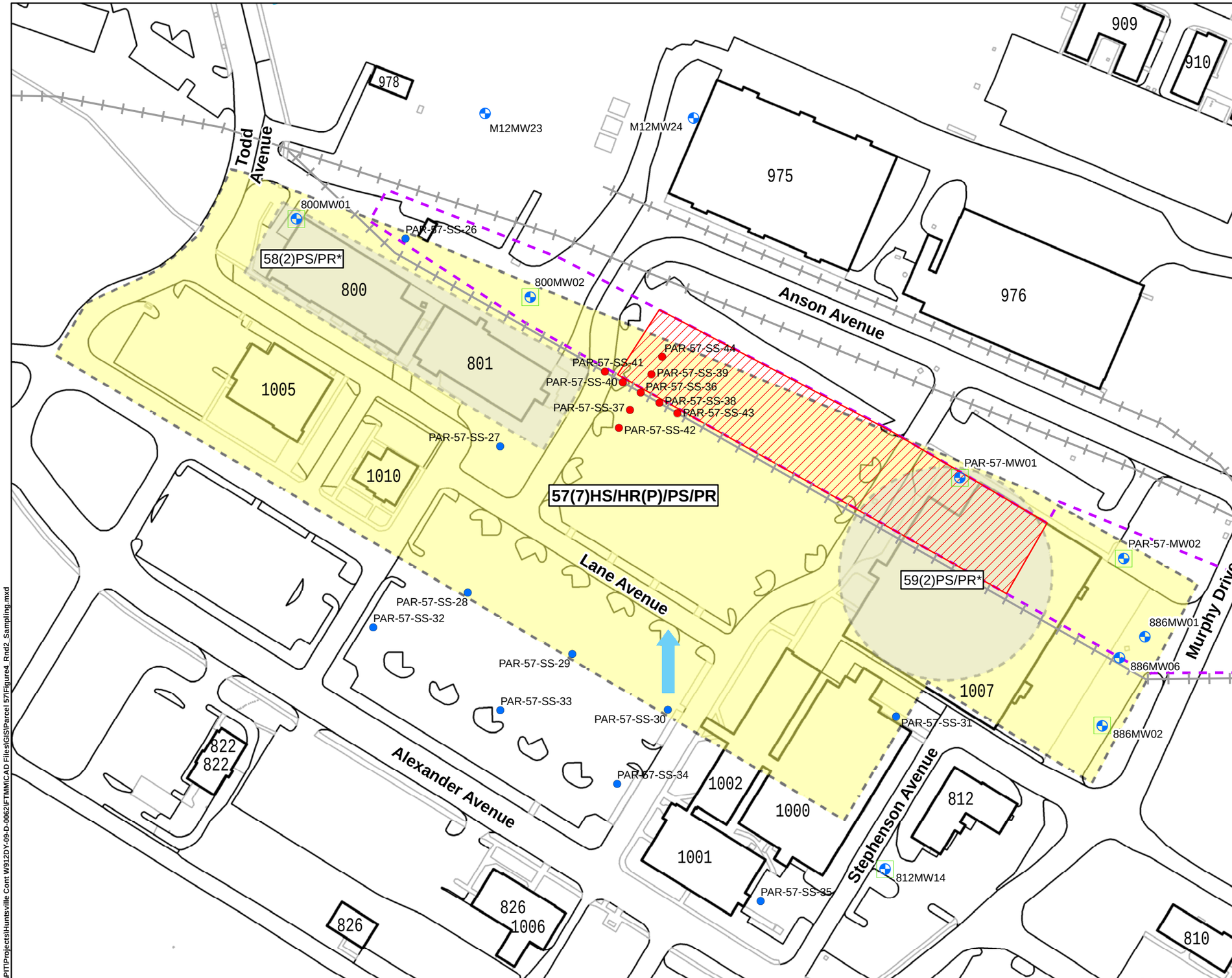

LEGEND:

- Proposed Soil Boring for PCB
- Proposed Soil Boring for PAH
- Proposed Groundwater Sample for Metal Analysis
- Shallow Monitoring Well
- Parcel 57 Boundary
- Approximate Location of Former Railroad Track (based on 1962 FTMM plan figure)
- *Parcel not included in Site Investigation
- Approximate Extent of Former Coal Storage Area
- Concrete Coal Storage Pad (removed)
- Generalized Groundwater Flow Direction

BRAC Parcel Label Definitions

8(2)PS
- Contaminant Description
  - HS – Hazardous Substance Storage
  - HR – Hazardous Substance Release
  - PS – Petroleum Storage
  - PR – Petroleum Release
  - (P) – Possible Release or Disposal
- Category Number
- Parcel Number

N

1 inch = 120 feet

0 60 120 240 Feet

Source: FTMM Supplied CAD, 2013; U.S. Army BRAC, 2008.

PARSONS
401 Diamond Drive NW,
Huntsville AL

Fort Monmouth
New Jersey

PROPOSED ROUND 2 SAMPLING LOCATIONS FOR PARCEL 57

CREATED BY: RR	REVIEWED BY: SS
DATE: MAR. 2016	FIGURE NUMBER: FIGURE 4
PROJECT NUMBER: 748810-06018	FILE: Figure4_Rnd2_Sampling.mxd

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ATTACHMENTS

Attachment 1 Parcel 57 Round 1 Boring Logs

PARSONS

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Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - RI (Parcel 57)
PROJECT LOCATION: Oceanport, NJ
PROJECT NUMBER: 748810-06018

GROUNDWATER OBSERVATIONS
WATER LEVEL: Not observed.
DATE: 09/18/15
TIME: —
MEAS. FROM: —

INSPECTOR: Dennis Miller (PARSONS)
DRILLER: Joe Bamak (ECDI)
WEATHER: Clear, Sunny, 60°F
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 09/18/15; 1040
DATE/TIME FINISH: 09/18/15; 1045
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM - 57 - SS - 01
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0				0.0	0.0-0.5': Dry, gray/black ASPHALT.		
	0.5-1.0' @ 1104			0.2	0.5-1.0': Dry, m.dense tan/gray med. to M/C SAND, little subang. M/F gravel.		
1	1.0-1.5' @ 1107			0.5	1.0-1.2': Moist, d. brown dense silty-sand.		
				1.0	1.2-1.5': Moist, dense black M/F SAND. odor.		Med. H/C odor
2	2.0-2.5' @ 1110		4.0'/5.0'	0.5	1.5-1.8': Moist, m.dense gray/brown M/F SAND. little silt.		
				0.3	1.8-2.2': Moist, m.dense Mottled (Brown/gray/tan/black) M/F to M/C Sand, trace silt, trace organics		
3				0.3			
				0.3	2.2-2.5': Moist, v.dense gray/brown silty-sand.		
4			NR	—	2.5-4.0': Moist, m.dense/loose gray/brown/tan M/F to med. SAND, little silt.		
			NR	—	4.0-5.0': No Recovery.		
5					End of Boring: 5.0' bgs.		
6							
7							
8							
9							
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)			Fine Grained (Silt & Clay)		
V. Loose: 0-4	Dense: 30-50		V. Soft: <2	Stiff: 8-15	
Loose: 4-10	V. Dense:: >50		Soft: 2-4	V. Stiff: 15-30	
M. Dense: 10-30			M. Stiff: 4-8	Hard: > 30	

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density/color, gradation

PARSONS

Page 1 of 1

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - RI (Parcel 57)
PROJECT LOCATION: Oceanport, NJ
PROJECT NUMBER: 748810-06018

GROUNDWATER OBSERVATIONS
WATER LEVEL: Not observed.
DATE: 09/18/15
TIME: —
MEAS. FROM: —

INSPECTOR: Dennis Miller (PARSONS)
DRILLER: Joe Barnak (ECDI)
WEATHER: Clear, Sunny, 60°F
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 09/18/15; 1050
DATE/TIME FINISH: 09/18/15; 1055
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM - 57 - SS - 02
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0				0.0	0.0-0.6': Dry, gray/black ASPHALT.		
				0.1	0.6-1.3': Dry, gray/white gravelly sub-base.		
1	1.3-1.8' @ 1155			0.2	1.3-1.8': Moist, loose black/d.brown/d.gray Med. to M/C Silty-Sand, med. strong odor.		Med. strong odor.
			3.8'/5.0'	0.2			
2	2.3-2.8' @ 1158			0.2	1.8-2.9': Moist, m.dense/dense gray to d. gray M/F SAND, trace silt.		
				0.1			
3	3.3-3.8' @ 1200			0.1	2.9-3.8': Moist, dense orange/brown/tan M/F SAND, trace silt.		
			NR	—	3.8-5.0': No Recovery.		
4				—			
				—			
5					End of Boring: 5.0' bgs.		
6							
7							
8							
9							
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density/consistency, plasticity

PARSONS

Page 1 of 1

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - RI (Parcel 57)
PROJECT LOCATION: Oceanport, NJ
PROJECT NUMBER: 748810-06018

GROUNDWATER OBSERVATIONS
WATER LEVEL: Not observed.
DATE: 09/18/15
TIME: —
MEAS. FROM: —

INSPECTOR: Dennis Miller (PARSONS)
DRILLER: Joe Barnak (ECDI)
WEATHER: Clear, Sunny, 65°F
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 09/18/15; 1156
DATE/TIME FINISH: 09/18/15; 1159
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM - 57 - SS - 03
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0				0.7	0.0-0.3': Dry, loose brown/tan M/F SAND, little organics (grass/roots)		
	0.5-1.0' @ 1235			1.2	0.3-0.5': Dry, gravelly-SAND (sub-base).		
1	1.0-1.5' @ 1238		2.7'/5.0'	0.6	0.5-1.3': Moist, m. dense brown M/F SAND.		
				1.0			
2	2.2-2.7' @ 1240			0.3	1.3-2.7': Moist, m. dense brown M/F SAND, trace silt.		
			NR	—	2.7-5.0': No Recovery.		
3				—			
				—			
4				—			
				—			
5					End of Boring: 5.0' bgs.		
6							
7							
8							
9							
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, gradation

PARSONS

Page 1 of 1

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - RI (Parcel 57)
PROJECT LOCATION: Oceanport, NJ
PROJECT NUMBER: 748810-06018

GROUNDWATER OBSERVATIONS
WATER LEVEL: Not observed.
DATE: 09/18/15
TIME: –
MEAS. FROM: –

INSPECTOR: Dennis Miller (PARSONS)
DRILLER: Joe Barnak (ECDI)
WEATHER: Clear, Sunny, 60's
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 09/18/15 ; 1201
DATE/TIME FINISH: 09/18/15 ; 1204
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM - 57 - SS - 04
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0				2.4	0.0-0.5': Dry, gray/black ASPHALT.		
				0.2	0.5-1.0': Dry, sub-base/Sandy-Gravel.		
1	1.0-1.5' @ 1315			0.1	1.0-3.0': Dry, m.dense Mottled (brown/tan/gray) M/F to med. SAND, some med. ang. gravel.		
				0.0			
2	2.0-2.5' @ 1318		4.0'/5.0'	0.1			
				0.2			
3	3.0-3.5' @ 1321			0.7	3.0-3.5': Moist, dense fine Silty-Sand little clay, little gravel.		
				0.1	3.5-4.0': Dry, white/gray CONCRETE.		
4			NR	—	4.0-5.0': No Recovery.		
			NR	—			
5					End of Boring: 5.0' bgs.		
6							
7							
8							
9							
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)			Fine Grained (Silt & Clay)		
V. Loose: 0-4	Dense: 30-50		V. Soft: <2	Stiff: 8-15	
Loose: 4-10	V. Dense:: >50		Soft: 2-4	V. Stiff: 15-30	
M. Dense: 10-30			M. Stiff: 4-8	Hard: > 30	

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, gradation

PARSONS

Page 1 of 1

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - RI (Parcel 57)
PROJECT LOCATION: Oceanport, NJ
PROJECT NUMBER: 748810-06018

GROUNDWATER OBSERVATIONS
WATER LEVEL: Not Observed.
DATE: 09/18/15
TIME: —
MEAS. FROM: —

INSPECTOR: Dennis Miller (PARSONS)
DRILLER: Joe Bamak (ECDI)
WEATHER: Clear, Sunny, High-60's
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 09/18/15; 1340
DATE/TIME FINISH: 09/18/15; 1344
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM - 57 - SS - 05
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0				0.1	0.0-0.5': Dry. gray/black ASPHALT.		
	0.5-1.0' @ 1355			0.0	0.5-0.6': Lens of dry black med. SAND.		
1				0.0	0.6-2.0': Dry, m.dense black/brown/tan med. to M/F SAND, some med. subround gravel.		
	1.5-2.0' @ 1359			0.0			
2			4.5'/5.0'	0.0	2.0-4.5': Moist, dense Mottled (orange/brown/tan) M/F SAND, little silt, little subround-subang. gravel.		
	2.5-3.0' @ 1404			0.0			
3				0.0			
				0.0			
4				0.0			
			NR	—	4.5-5.0': No Recovery.		
5					End of Boring: 5.0' bgs.		
6							
7							
8							
9							
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, odor, etc.

PARSONS

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Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - RI (Parcel 57)
PROJECT LOCATION: Oceanport, NJ
PROJECT NUMBER: 748810-06018

GROUNDWATER OBSERVATIONS
WATER LEVEL: Not Observed.
DATE: 09/18/15
TIME: –
MEAS. FROM: –

INSPECTOR: Dennis Miller (PARSONS)
DRILLER: Joe Barnak (ECDI)
WEATHER: Clear, Sunny, High-70's
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 09/18/15; 1350
DATE/TIME FINISH: 09/18/15; 1355
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM - 57 - SS - 06
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0				1.1	0.0-0.5': Dry, gray/black ASPHALT.		
	0.5-1.0' @ 1415			0.0	0.5-0.7': Dry, m.dense black fine SAND.		
1				0.0	0.7-1.4': Dry/Moist, m.dense brown/gray/tan med. SAND, trace wood, little subang. gravel.		
	1.5-2.0' @ 1418		3.5'/50'	0.0			
2				0.0	1.4-2.5': Moist, dense d.gray Silty-Sand, trace wood.		
	2.5-3.0' @ 1421			0.0			
3				0.0	2.5-2.7': Moist/Wet, m.dense black med. to M/C SAND.		
			NR	—	2.7-3.5': Moist, m.dense d.gray/brown M/F Silty-Sand.		
4				—	3.5-5.0': No Recovery.		
				—			
5					End of Boring: 5.0' bgs.		
6							
7							
8							
9							
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)			Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50		V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50		Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30			M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, consistency

PARSONS

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Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - RI (Parcel 57)
PROJECT LOCATION: Oceanport, NJ
PROJECT NUMBER: 748810-06018

GROUNDWATER OBSERVATIONS
WATER LEVEL: Not observed.
DATE: 09/18/15
TIME: —
MEAS. FROM: —

INSPECTOR: Dennis Miller (PARSONS)
DRILLER: Joe Barnak (ECDI)
WEATHER: Clear, Sunny, High-70's
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 09/18/15;
DATE/TIME FINISH: 09/18/15;
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM - 57 - SS - 07
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0				0.0	0.0-0.5': Dry, gray/black ASPHALT.		
	0.5-1.0' @ 1435			0.0	0.5-0.9': Dry, m.dense black med. SAND, little med. subang. gravel.		
1				0.4	0.9-2.0': Dry/Moist, dense brown/gray SAND, little med. subround gravel.		
	1.5-2.0' @ 1439			0.0			
2			4.5'/5.0'	0.0	2.0-4.0': Dry/Moist, m.dense gray/brown M/F SAND, little med. subround gravel, trace red brick.		
	2.5-3.0' @ 1442			0.0			
3				0.0			
				0.0			
4				0.0	4.0-4.5': Moist, dense silty-sand, some med to M/c subang gravel.		
			NR	—	4.5-5.0': No Recovery.		
5					End of Boring: 5.0' bgs.		
6							
7							
8							
9							
10							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)			Fine Grained (Silt & Clay)		
V. Loose: 0-4	Dense: 30-50		V. Soft: <2	Stiff: 8-15	
Loose: 4-10	V. Dense:: >50		Soft: 2-4	V. Stiff: 15-30	
M. Dense: 10-30			M. Stiff: 4-8	Hard: > 30	

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM-RI (FTMM68)
PROJECT LOCATION: Oceanport, NJ
PROJECT NUMBER: 748810-02180
GROUNDWATER OBSERVATIONS
WATER LEVEL:
DATE:
TIME:
MEAS. FROM:

INSPECTOR: Dennis Miller (Parsons)
DRILLER: Joe Barnak (ECDI)
WEATHER:
CONTRACTOR: ECDI
RIG TYPE: Geoprobe (R) 7822 DT
DATE/TIME START: 09/21/15: 0822
DATE/TIME FINISH: 09/21/15: 0831
WEIGHT OF HAMMER: —
DROP OF HAMMER: —
TYPE OF HAMMER: —

BORING ID: FTMM-57-SS-08
LOCATION DESCRIPTION
LOCATION PLAN
Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0				0.0	0.0-0.7': Concrete.		
					0.7-0.9': Dry, M.dense brown/gray Med. sand and m/f angular gravel.		
1	0.9-1.4' @0850						
			3.0'/5.0'		0.9-1.5': Dry/Moist, M.dense/dense orange-brown M/F sand some M/F subround gravel.		
2	1.9-2.4' @0852						
	2.5-3.0' @0855				1.5-3.0': Moist, brown/d. brown m.dense/dense M/F sand little subround-sub ang M/F gravel.		
3			NR	-			
			NR	-			
4			NR	-	3.0-5.0': NR.		
			NR	-			
5							
6							
7							
8							
9							
0							

Remarks:

Sample Types
S – Split-Spoon
U – Undisturbed Tube
C – Rock Core
A – Auger Cuttings

Consistency vs. Blowcount / Foot

Granular (Sand & Gravel)		Fine Grained (Silt & Clay)	
V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15
Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30
M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30

and - 35-50%
some - 20-35%
little - 10-20%
trace - <10%
moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Dick Lotzo	BORING/WELL ID: FTMM - 57-55-09	
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION	
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 65° F, Overcast	North of Building 801	
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)		
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN	
	DATE/TIME START: 10/1/15 @ 0825	Oceanport, New Jersey	
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 0900		
DATE: N/A	*WEIGHT OF HAMMER:* N/A		
TIME: N/A	*DROP OF HAMMER:* N/A		
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A		

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			60"/37"	8.9	6" Asphalt		
	FTMM-57-55-09-0.5-1.0			10.7	0"-11" Moist, Dark Brown, Loose, F-M Sand, Little Silt, Little F-M Gravel, No Coal/Asphalt		
1				3.9			
				12.4	11"-37" Moist, Red-Brown, Dense, F-M Sand, Little Clay, No Coal/ Asphalt		
2	FTMM-57-55-09-2.0-2.5			15.9			
				12.6			
3			NR	—			
			NR	—			
4			NR	—			
			NR	—			
5			60"/33"	0.8	60"-68" Dry, Light Gray, Loose, Weathered Concrete, Trace Gravel, No Coal/Asphalt		
	FTMM-57-55-09-5.5-6.0			19.3			
6				6.2	68"-73" Moist, Dark Brown-Black, Dense, F-C Sand, Some F Gravel, Little Coal		
				7.5			
7				6.3	73"-93" Wet, Orange Brown, Loose, F-M Sand, Trace Silt, No Coal/Asphalt		
				4.2			
8			NR	—			
			NR	—			
9			NR	—			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density/color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Lezos	BORING/WELL ID: FTMM - 57-SS-10
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 65°F, Overcast	NE of building 801
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 0905	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 0920	
DATE: N/A	*WEIGHT OF HAMMER:* N/A	
TIME: N/A	*DROP OF HAMMER:* N/A	
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-10-0.0-0.5		60"/40"	0.0	0"-14" Dry, Loose, Light Brown, F-M Sand, Little F-M Gravel, Little Organics, No Coal/Asphalt		
				0.0			
1				0.6	14"-19" Dry, Dark Brown, F-C Sand, F-C Gravel, Little Silt, No Coal/Asphalt		
				0.6			
2				15.6	19"-25" Moist, Red-Brown, Dense, F-M Sand, Some Clay, No Coal/Asphalt		
				15.7			
3	FTMM-57-SS-10-3.0-3.5			27.3	25"-40" Moist, Gray-Orange Mottled, Hard, Clay, Some F Sand, No Coal/Asphalt		
			NR	—			
4			NR	—			
			NR	—			
5			60"/56"	5.0	60"-93" Moist, Gray-Orange Mottled, Soft, Clay, Little F Sand, No Coal/Asphalt		
				0.0			
6				1.8			
				1.0			
7	FTMM-57-SS-10-7.0-7.5			15.0			
				0.0	93"-106" Wet, Orange-Brown, Soft, Clay, And F Sand, No Coal/Asphalt		
8				1.5			
				0.8			
9				0.3			
				0.1			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Dick Lazos	BORING/WELL ID: FTMM - 57-SS-11
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 68°F, Rain, 0-15 mph Wind	Parking Lot West of Building 1007
PROJECT NUMBER: 748810-06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 0935	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1000	
DATE: N/A	*WEIGHT OF HAMMER:* N/A	
TIME: N/A	*DROP OF HAMMER:* N/A	
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-11-0.0-0.5		60"/41"	0.0	5" Asphalt		
				0.0	0"-5" Dry, Dark Brown, Loose, F-C Sand, Some F-M Gravel, Trace Coal		
1				0.0			
				1.4	5"-39" Moist, Dark Gray, Loose, F-M Sand, Little F Gravel, Little Silt, No Coal/Asphalt		
2				3.4			
				2.7	39"-41" Moist, Olive Green, Loose, F Sand, Trace Clay, No Coal/Asphalt		
3	FTMM-57-SS-11-3.0-3.5			2.5			
			NR	—			
4			NR	—			
			NR	—			
5			60"/50"	37.2	60"-74" SAA		
				21.5			
6				33.9	74"-88" Moist, Olive-Orange Mottled, Hard, Clay, And F Sand, No Coal/Asphalt		
				73.6			
7	FTMM-57-SS-11-7.0-7.5			74.9			
				54.9	88"-110" Wet, Gray-Olive Mottled, Soft, Clay, And F Sand, No Coal/Asphalt		
8				111.8			
				25.0			
9				22.7			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Lorenz	BORING/WELL ID: FTMM - 57-SS-12
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 70°F, Rain, Wind 10-15	NW Corner of Building 1007
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1020	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1030	
DATE: N/A	*WEIGHT OF HAMMER:* N/A	
TIME: N/A	*DROP OF HAMMER:* N/A	
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-12-0.0-0.5		0"/60"	0.0	0"-3" Moist, Dark Brown, Loose, F-M Sand, Some Silt, Some Organics, No Coal/Asphalt		
				6.9			
1				35.2	3"-24" Dry, Light-Brown, Loose, F-C Sand, Some, F-M Gravel, Little organics, Trace Coal, Trace Silt		
				15.5			
2				27.4			
				25.9	24"-35" Moist, Dark Brown, Dense, F-M Sand, Some Clay, Little F-M Gravel, Trace Coal		
3	FTMM-57-SS-12-3.0-3.5			25.0			
				21.0	35"-50" Moist, Orange, Loose, F-M Sand, Little Silt, No Coal/Asphalt		
4				28.7			
			NR	—			
5			60"/48"	0.0	60"-81" Moist, Gray, Loose, F-M Sand, Little F-M Gravel, Little Silt, No Coal/Asphalt		
				3.9			
6				8.5			
				0.0	81"-90" Moist, Light Brown-Black, Loose, F-C Sand, Some F-C Gravel, Little Coal, Little Clay		
7	FTMM-57-SS-12-7.0-7.5			0.8			
				0.0			
8				0.0	90"-102" Wet, Olive Green, Very Dense, F Sand, And Clay, No Coal/Asphalt		
			NR	—			
9			NR	—			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Cotrus	BORING/WELL ID: FTMM - 57-SS-13
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 70°F, Overcast	Parking lot west of Building 1007
PROJECT NUMBER: 748810- 660018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1035	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @	
DATE: N/A	*WEIGHT OF HAMMER:* N/A	
TIME: N/A	*DROP OF HAMMER:* N/A	
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-13-0.0-0.5		60"/40"	0.0	4" Asphalt		
				0.0	0"-8" Moist, Dark Brown, Loose, F-C Sand, Little F-M Gravel, Little Silt, Trace Coal		
1				0.0			
				0.0	8"-23" Moist, Light Brown, Loose, FM Sand, Little F-C Gravel, Trace Silt, No Coal/Asphalt		
2				0.0			
				0.0	23"-40" Moist, Gray-Orange Mottled, Hard, Clay, Little F Sand, No Asphalt/Coal		
3	FTMM-57-SS-13-3.0-3.5			0.0			
			NR	—			
4			NR	—			
			NR	—			
5			60"/50"	0.0	60"-83" Moist, Orange-Brown, Loose, F-M Sand, Trace Clay, No Coal/Asphalt		
				0.3			
6				0.0			
	FTMM-57-SS-13-6.5-7.0			0.0			
7				0.3	83"-110" Wet, Light Gray-Orange Mottled, Loose, F-C Sand, No Coal/Asphalt		
				0.0			
8				0.0			
				0.0			
9			NR	—			
			NR	—			
10					10" EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Gotzos	BORING/WELL ID: FTMM-57-SS-14
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - 57	WEATHER: 70°F, Rain	SW Corner of Parking Lot West of Building 1007
PROJECT NUMBER: 748810- 066018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1150	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1205	
DATE: N/A	*WEIGHT OF HAMMER:* N/A	
TIME: N/A	*DROP OF HAMMER:* N/A	
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-14-0.0-0.5		60"/49"	0.2	5" Asphalt		
				0.4	0"-4" Dry, Dark Brown, Loose, F-C Sand, And F-M Gravel, Little Silt, Trace Asphalt		
1				1.6			
				0.3	4"-35" Dry, Light Gray, Loose, F-M Sand, Some F-C Gravel, Little Concrete, Little Silt, Trace Brick, No Coal, Trace Asphalt		
2				0.2			
				0.2			
3	FTMM-57-SS-14-3.0-3.5			0.0	35"-49" Moist, Brown, Dense, F-M Sand, Some Silt, Little F-M Gravel, No Coal/Asphalt		
				0.1			
4			NR	—			
			NR	—			
5	FTMM-57-SS-14-5.0-5.5		60"/46"	0.0	60"-63" Moist, Red-Brown, Loose, F-C Sand, Little F-M Gravel, No Coal, No Asphalt		
				0.0			
6				0.2			
				0.0	63"-80" Wet, Light Brown, Loose, F-C Sand, Some F-C Gravel, No Coal/Asphalt		
7				0.0			
				0.1	80"-85" Wet, Red-Brown, Hard, Clay, Little F-M Sand, No Coal/Asphalt		
8				0.0			
				0.0	85"-106" Wet, Dark Gray, Hard, Clay, Little F Sand, No Coal/Asphalt		
9			NR	—			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Lazos	BORING/WELL ID: FTMM - 57-SS-15
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION: Parking Lot West of Building 1007
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 70°F, Rain	
PROJECT NUMBER: 748810- 66018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1150	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1225	
DATE: N/A	*WEIGHT OF HAMMER:* N/A	
TIME: N/A	*DROP OF HAMMER:* N/A	
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-15-0.0-0.5		60"/43"	0.0	0"-3" Moist, Dark Brown, Loose, F-C Sand, Some F-M Gravel, Trace Asphalt		
				0.4			
1				0.0	3"-7" Dark Green, Moist, Loose, F-M Sand, Little Silt, No Coal/Asphalt		
				0.0			
2				0.0	7"-25" Moist, Brown, Loose, F-C Sand, And F-C Gravel, Little Silt, No Coal/Asphalt		
				0.0			
3	FTMM-57-SS-15-3.0-3.5			0.0	25"-31" Moist, Dense, Dark Green, F-M Sand, Little Silt, No Coal/Asphalt		
				0.0			
4			NR	—	31"-43" Moist, Orange-Gray Mottled, Dense, F Sand, Little Clay, No Coal/Asphalt		
			NR	—			
5			60"/54"	0.0	60"-73" Moist, Red-Brown-Black Mottled, Loose, F-C Sand, Some F-M Gravel, Trace Coal?		
	FTMM-57-SS-15-5.5-6.0			0.0			
6				0.0	73"-114" Wet, Tan-Light Brown, Loose, F-C Sand, Little F-M Gravel (Rounded), No Coal/Asphalt		
				0.0			
7				0.1			
				0.0			
8				0.0			
				0.0			
9				0.0			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Lorcos	BORING/WELL ID: FTMM - 57-SS-16
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 70°F, Rain - Overcast	Parking Lot West of Building 1027
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1240	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1255	
DATE: N/A	*WEIGHT OF HAMMER:* N/A	
TIME: N/A	*DROP OF HAMMER:* N/A	
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-16-0.0-0.5		60"/46"	0.3	6" Asphalt 0"-5" Dry, Black, Loose, F-C Sand, Some F-M Gravel, Little Asphalt, Little Silt		
				0.1			
1				0.0	5"-9" Moist, Dense, Gray, F-C Sand, Little Clay, Trace F Gravel, Trace Concrete		
	FTMM-57-SS-16-1.5-2.0			0.9			
2				0.4	9"-40" Moist, Green-Orange Mottled, Dense, F-M Sand, Little Clay, Trace F-C Gravel		
				0.0			
3				0.0	* 20"-23" Black Sand/Gravel lense containing Coal		
				0.0	40"-46" Crushed Concrete		
4			NR	—			
			NR	—			
5			60"/46"	0.0	60"-68" Moist, Olive Green, Dense, F-M Sand, Little Clay, Trace F Gravel		
				0.0			
6	FTMM-57-SS-16-6.0-6.5			0.0	68"-70" Crushed Concrete		
				0.0	70"-76" Moist, Light Gray-Orange Mottled, Dense, F Sand, Little Clay, No Coal/Asphalt		
7				0.0			
				0.0			
8				0.0			
				0.0	76"-106" Wet, Light Brown, Loose, F-C Sand, Some F-C Gravel (Rounded), No Coal/Asphalt		
9			NR	—			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Dick Lotzos	BORING/WELL ID: FTMM - 57-SS-17
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION: Parking Lot West of Buildings 1000-1000A
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 74°F, Rain	
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1255	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1310	
DATE: N/A	WEIGHT OF HAMMER: N/A	
TIME: N/A	DROP OF HAMMER: N/A	
MEAS. FROM: N/A	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57 -SS-17-0.0-0.5		60"/51"	0.6	4" Asphalt, 0"-13" Gray, Loose, F-C Sand, Crushed Concrete, Little Silt, Trace Coal		
				0.0			
1				0.0	13"-24" Moist, Olive Green, Loose, F-M Sand, Trace F Gravel, Trace Clay, No Coal/Asphalt		
				0.0			
2				0.2	24"-35" Crushed Concrete		
				0.0	35"-59" Moist, Red-Brown, Dense, F-M Sand, Little Clay, No Coal/Asphalt		
3	FTMM-57 -SS-17-3.0-3.5			0.0			
				0.0			
4				0.0			
				0.0			
5			60"/53"	0.0	60"-64" SAA 64"-67" Crushed Concrete		
	FTMM-57 -SS-17-5.5-6.0			0.3	67"-70" Moist, Red-Brown, Dense, F-M Sand, Trace Clay, No Coal/Asphalt		
6				0.0			
				0.0			
7				0.0	70"-93" Wet, Red-Brown-Gray Mottled, Loose, F-M Sand Some Clay, No Coal/Asphalt		
				0.0			
8				0.0			
				0.0	93"-113" Wet, Black, Loose, F-M Sand, Trace Clay, No Coal/Asphalt		
9				0.0			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Dick Lorzo	BORING/WELL ID: FTMM - 57-SS-18
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION: East of Building 801
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 74°F, Overcast	
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1325	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1345	
DATE: N/A	WEIGHT OF HAMMER: N/A	
TIME: N/A	DROP OF HAMMER: N/A	
MEAS. FROM: N/A	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-18-0.0-0.5		60"/44"	0.0	4" Asphalt		
				0.0	0"-10" Moist, Dark Gray, Loose, F-C Sand, Some F-C Gravel, Trace Silt, Trace Coal		
1				0.2			
				0.3	10"-34" Moist, Brown, Loose, F-C Sand, Little Clay, Trace F Gravel, No Coal/Asphalt		
2				0.0			
				0.0	34"-44" Moist, Gray-Orange mottled, Dense, F Sand, Some Clay, No Coal/Asphalt		
3	FTMM-57-SS-18-3.0-3.5			0.0			
				0.0			
4			NR	—			
			NR	—			
5	FTMM-57-SS-18-5.0-5.5		60"/60"	0.0	60"-68" Moist, Gray-Orange Mottled, Dense, F-C Sand, Some Clay, No Coal/Asphalt		
				0.0			
6				0.0			
				0.0	68"-120" Wet, Dark Gray-Orange, Loose Mottled, F-C Sand, Some F-M Gravel (Rounded), No Coal/Asphalt		
7				0.0			
				0.0			
8				0.0			
				0.0			
9				0.0			
				0.0			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Dick Cotzos	BORING/WELL ID: FTMM - 57-SS-19
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 75° F, Rain	NE of Building 801
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1405	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1425	
DATE: N/A	WEIGHT OF HAMMER: N/A	
TIME: N/A	DROP OF HAMMER: N/A	
MEAS. FROM: N/A	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-19-0.0	0.5	60"/49"	0.0	4" Asphalt		
				5.9	0"-30" Dry, Dark Gray, Loose, F-C Sand, And F-M Gravel, Little Clay, Trace Coal, Trace Concrete		
1				0.9			
				0.5			
2				3.5	30"-39" Dry, Orange-Brown, Dense, F-M Sand, Little F-C Gravel, Little Silt, No Coal/Asphalt		
				0.6			
3	FTMM-57-SS-19-3.0	3.5		0.5	39"-49" Moist, Black-Green Mottled, Loose, F Sand, Little Wood, Trace Clay, 31"-34" Loose w/ F-C Sand + Coal		
				0.0			
4			NR	—			
			NR	—			
5			60"/60"	0.3	60"-73" Moist, Olive Green, Soft, Clay, Some F Sand, Trace Wood, No Coal/Asphalt		
				0.5			
6				0.0	73"-83" Moist, Light Brown, Loose, F Sand, Some Clay, No Coal/Asphalt		
	FTMM-57-SS-19-6.5-7.0			0.0			
7				0.0			
				0.0	83"-120" Wet, SAA		
8				0.0			
				0.0			
9				0.0			
10							

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Loizos	BORING/WELL ID: FTMM - 57-SS-20
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 75°F, Rain	South of Building 975
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/1/15 @ 1435	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/1/15 @ 1500	
DATE: N/A	WEIGHT OF HAMMER: N/A	
TIME: N/A	DROP OF HAMMER: N/A	
MEAS. FROM: N/A	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57 -SS-20-0.0-0.5		60"/48"	0.0	5" Asphalt		
				0.0	0"-19" Dry, Brown, Loose, F-C Sand, Some Silt, Little F-C Gravel, Little organics, No Coal/Asphalt		
1				0.9			
				3.1	19"-43" Moist, Gray, Loose, F-M Sand, Little Clay, Trace F-M Gravel, No Coal/Asphalt		
2				6.9			
				6.1	23"-28" Railroad Tie (Wood w/ Creosote)		
3	FTMM-57 -SS-20-3.0-3.5			0.0			
			NR	—			
4			NR	—			
			NR	—			
5	FTMM-57 -SS-20-5.0-5.5		60"/60"	0.0	60"-67" Moist, Olive Green, Dense F-M Sand, Little Clay, Trace F Gravel, No Coal/Asphalt		
				0.1			
6				0.0			
				0.0	67"-120" Wet, Green-Orange Mottled, Hard, Clay, Some F Sand, No Coal/Asphalt		
7				0.0			
				0.0			
8				0.0			
				0.0			
9				0.0			
				0.0			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Dick Lowry	BORING/WELL ID: FTMM - 57-SS-01
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 55°F, Rain, Wind 10-15	Parking Lot West of Building 1007
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/3/15 @ 0835	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/3/15 @ 0855	
DATE: N/A	*WEIGHT OF HAMMER:* N/A	
TIME: N/A	*DROP OF HAMMER:* N/A	
MEAS. FROM: N/A	*TYPE OF HAMMER:* N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-01-0.0-0.5		60"/41"	0.9	4" Asphalt		
				0.8	0"-16" Dry, Dark Brown, Loose, F-C Sand, Little F-M Gravel, Little Silt, Trace Asphalt		
1				0.0			
				0.0	16"-41" Moist, Red-Brown, Soft, Clay, Some F Sand, Trace F Gravel, No Coal/Asphalt		
2				0.0			
				0.0			
3	FTMM-57-SS-01-3.0-3.5			0.0			
			NR	0.0			
4			NR	0.0			
			NR	0.0			
5			60"/45"	0.0	60"-75" SAA		
				0.0			
6				0.0			
	FTMM-57-SS-01-6.5-7.0			0.0			
7				0.0			
				0.0	75"-105" Wet, Light Brown, Loose, F-C Sand, Little Clay, No Coal/Asphalt		
8				0.0			
				0.0			
9			NR	—			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Lorenzo	BORING/WELL ID: FTMM - 57-SS-22
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION: SW Corner of Building 1007
PROJECT LOCATION: FTMM - 57	WEATHER: 65°F, Rain, Wind 10-15	
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/5/15 @ 0905	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/5/15 @ 0915	
DATE: N/A	WEIGHT OF HAMMER: N/A	
TIME: N/A	DROP OF HAMMER: N/A	
MEAS. FROM: N/A	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-22-0.0	0.5	60"/41"	0.0	0"-31" Moist, Dark Brown, Loose, F-M Sand, Little F Gravel, Trace Organics, No Coal/Asphalt		
				0.0			
1				0.0			
				0.0	31"-41" Moist, Light Gray-Brown Mottled, Loose, F-C Sand, Some F-C Gravel, Little Concrete, No Coal/Asphalt		
2				0.0			
				0.0			
3	FTMM-57-SS-22-3.0	3.5		0.0			
			NR	—			
4			NR	—			
			NR	—			
5			60"/46"	0.0	60"-98" Moist, Orange-Brown, Loose, F-M Sand, Trace Silt, No Coal/Asphalt		
				0.0			
6				0.0			
				0.0			
7				0.0			
	FTMM-57-SS-22-7.0	7.5		0.0			
8				0.0	98"-106" Wet, Light Brown-Tan, Loose, F-C Sand, Little F Gravel, No Coal/Asphalt		
				0.0			
9			NR	—			
			NL	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Dick Lotzos	BORING/WELL ID: FTMM - 57-SS-23
PROJECT NAME: FTMM - RI	DRILLER: Vern Atwood	LOCATION DESCRIPTION: NW corner of Building 1007
PROJECT LOCATION: FTMM - 57	WEATHER: 58°F, Rain, Wind 0-15	
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/8/15 @ 0930	Oceanport, New Jersey
WATER LEVEL: N/A	DATE/TIME FINISH: 10/8/15 @ 0940	
DATE: N/A	WEIGHT OF HAMMER: N/A	
TIME: N/A	DROP OF HAMMER: N/A	
MEAS. FROM: N/A	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-23-0.0-0.5		60"/44"	0.0	0"-11" Dry, Dark Brown, Loose, F Sand, Some Silt, Little Organics, Trace F-M Gravel, No Coal/Asphalt		
				0.1			
1				0.0	11"-39" Moist, Brown, Dense, F-M Sand, Some Silt, Some F-M Gravel, No Coal/Asphalt		
				0.0			
2				0.0			
				0.0	39"-44" Moist, Olive Green, Dense, F Sand, Little Clay, Trace F Gravel, No Coal/Asphalt		
3	FTMM-57-SS-23-3.0-3.5			0.0			
				0.0			
4			NR	—			
			NR	—			
5			60"/46"	0.0	60"-108" Moist, Olive Green, Hard, Clay, Some F Sand, No Coal/Asphalt		
				0.0			
6				0.0			
				0.0			
7				0.0			
				0.0			
8	FTMM-57-SS-23-8.0-8.5			0.0			
				0.0	108"-108" Wet, SAA		
9			NR	—			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

Page 1 of 2

Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Lowens	BORING/WELL ID: FTMM - 57-SS-24
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 60°F, Rain	NE of Building 1007
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
WATER LEVEL: ≈9'	DATE/TIME START: 10/3/15 @ 1340	Oceanport, New Jersey
DATE: 10/3/15	DATE/TIME FINISH: 10/3/15 @ 1355	
TIME: 1415	WEIGHT OF HAMMER: N/A	
MEAS. FROM: 36S (from soil core)	DROP OF HAMMER: N/A	
	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57 -SS-24-0.0-0.5		60"/49"	0.0	0"-33" Moist, Dark Brown, Loose, S-C Sand, Some S-C Gravel, Trace Organics, Trace Concrete, No Coal/Asphalt		
				0.0			
1				0.0			
				0.0			
2				0.0	33"-34" Moist, Black, Loose, S-C Sand, And Coal		
				0.0	34"-43" Moist, Brown, Loose, S-M Sand, Little S-M Gravel (Banded), No Coal/Asphalt		
3	FTMM-57 -SS-24-3.0-3.5			0.0			
				0.0			
4			NR	—	43"-49" Moist, Olive Green, Hard, Clay, Little S-C Gravel, Little S Sand, No Coal/Asphalt		
			NR	—			
5			60"/60"	0.0	60"-73" SAA		
				0.0	73"-104" Moist, Olive Green, Hard, Clay, Some S Sand, No Coal/Asphalt		
6				0.0			
				0.0			
7				0.0			
				0.0			
8				0.0			
	FTMM-57 -SS-24-8.5-9.0			0.0	104"-130" Wet, Loose, Olive Green, S-M Sand, Little Clay, No Coal/Asphalt		
9				0.0			
				0.0			
10							

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS Page 2 of 2

Soil Boring Log

CLIENT: USACE
PROJECT NAME: FTMM - RI
PROJECT LOCATION: FTMM - Parcel 57
PROJECT NUMBER: 748810- 06018
GROUNDWATER OBSERVATIONS
WATER LEVEL: SEE PG.1
DATE:
TIME:
MEAS. FROM:

INSPECTOR: Nick Lowers
DRILLER: Vern Atwood
WEATHER: 60°F, Rain
CONTRACTOR: East Coast Drilling, Inc. (ECDI)
RIG TYPE: Geoprobe(R) 7822DT
DATE/TIME START: 10/3/15 @ 1340
DATE/TIME FINISH: 10/3/15 @ 1355
WEIGHT OF HAMMER: N/A
DROP OF HAMMER: N/A
TYPE OF HAMMER: N/A

BORING/WELL ID: FTMM - 57-SS-34
LOCATION DESCRIPTION: SEE PG.1
LOCATION PLAN: Oceanport, New Jersey

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
1 0			60"/60"	0.0	130"-146" SAA		
				0.0			
1 1				0.0	146"-170" Wet, Orange Brown, Loose, F-C Sand, Little F-M Gravel (Rounded), No Coal/Asphalt		
				0.0			
1 2				0.0			
				0.0			
1 3				0.0			
				0.0			
1 4				0.0			
			NR	—			
1 5			60"/60"	0.0	180"-192" Wet, Black, Soft, Clay, Little F Sand, No Coal/Asphalt		
				0.0			
1 6				0.0	192"-203" Wet, Orange, Soft, Clay, Trace F Sand, No Coal/Asphalt		
				0.0			
1 7				0.0			
				0.0	203"-240" Wet, Tan, Loose, F-C Sand, Some F Gravel (Rounded), Trace Silt, No Coal/Asphalt		
1 8				0.0			
				0.0	(NL) ~~160"-180"~~		
1 9				0.0			
				0.0			
2 0					20" EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35-50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

Page 1 of 1

Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Lozos	BORING/WELL ID: FTMM - 57-SS-35	
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION	
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 60F, Rain	East of Building 1027	
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)		
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN	
	DATE/TIME START: 10/3/15 @ 1305	Oceanport, New Jersey	
WATER LEVEL: N/A	DATE/TIME FINISH: 10/3/15 @ 1330		
DATE: N/A	WEIGHT OF HAMMER: N/A		
TIME: N/A	DROP OF HAMMER: N/A		
MEAS. FROM: N/A	TYPE OF HAMMER: N/A		

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0	FTMM-57-SS-35-0-0.5		60"/40"	0.1	0"-11" Dry, Gray, Loose, F-C Sand, and, F-C Gravel, Little Silt, Trace Concrete, No Coal/Asphalt		
				0.1			
1				0.0			
				0.0	11"-19" Moist, Red-Brown, Loose, F-M Sand, Little F Gravel, Trace Silt, No Coal/Asphalt		
2				0.0			
				0.0	19"-40" Moist, Olive Green, Soft, Clay, Some F Sand, No Coal/Asphalt		
3	FTMM-57-SS-35-30-3.5			0.0			
			NR	—			
4			NR	—			
			NR	—			
5	FTMM-57-SS-35-5.0-5.5		60"/89"	0.0	60"-74" Wet, Olive Green, Soft, Clay, Some F Sand, Trace F Gravel (Rounded) No Coal/Asphalt		
				0.0			
6				0.0			
				0.0	74"-80" Wet, Black, Loose, F-C Sand, Little F Gravel (Rounded), Little Silt, No Coal/Asphalt		
7				0.0			
			NR	—			
8			NR	—	80"-89" Wet, Olive Green, Soft, Clay, Little F Sand, No Coal/Asphalt.		
			NR	—			
9			NR	—			
			NR	—			
10					10' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

Page 1 of 2

Soil Boring Log

CLIENT: USACE	INSPECTOR: Dick Lewis	BORING/WELL ID: FTMM - 57-GW-MW01
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 55° F, Rain	NW corner of Building 1007
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/2/15 @ 0945	Oceanport, New Jersey
WATER LEVEL: 11.3'	DATE/TIME FINISH: 10/2/15 @ 1015	
DATE: 10/2/15	WEIGHT OF HAMMER: N/A	
TIME: 1010	DROP OF HAMMER: N/A	
MEAS. FROM: BGS (from soil core)	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
0			60"/44"	0.0	0"-7" Moist, Dark Brown, Loose, F-M Sand, Some Silt, Little Organics, No Coal/Asphalt		
				0.6			
1				0.0			
				0.1	7"-38" Moist, Red-Brown, Dense, F-C Sand, Some Silt, Little F-C Gravel, Trace Coal		
2				0.0			
				0.0			
3				0.0	38"-44" Moist, Olive Green, Soft, Clay, Some F Sand, No Coal/Asphalt		
				0.0			
4			NR	—			
			NR	—			
5			60"/50"	0.3	60"-110" SAA		
				0.0			
6				0.0			
				0.0			
7				0.0			
				0.0			
8				0.0			
				0.0			
9				0.0			
			NR	—			
10							

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

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Soil Boring Log

CLIENT: USACE	INSPECTOR: Nick Lozzo	BORING/WELL ID: FTMM - 57 - GW - MW01
PROJECT NAME: FTMM - RI	DRILLER: Ken Atwood	LOCATION DESCRIPTION
PROJECT LOCATION: FTMM - Parcel 57	WEATHER: 58°F, Rain	SEE PG.1
PROJECT NUMBER: 748810- 06018	CONTRACTOR: East Coast Drilling, Inc. (ECDI)	
GROUNDWATER OBSERVATIONS	RIG TYPE: Geoprobe(R) 7822DT	LOCATION PLAN
	DATE/TIME START: 10/3/15 @ 0945	Oceanport, New Jersey
WATER LEVEL:	DATE/TIME FINISH: 10/3/15 @ 1015	
DATE: SEE PG.1	WEIGHT OF HAMMER: N/A	
TIME:	DROP OF HAMMER: N/A	
MEAS. FROM:	TYPE OF HAMMER: N/A	

DEPTH (feet)	SAMPLE I.D.	BLOWS per 6"	ADV/ REC.	PID (ppm)	FIELD IDENTIFICATION OF MATERIAL	STRATA	COMMENTS
1 0			60"/53"	0.0	120"-134" SAA		
				0.0			
1 1				0.0	134"-173" Wet, Olive Green, Silt, Clay, Some F Sand, No Coal/Asphalt		
				0.0			
1 2				0.0			
				0.0			
1 3				0.0			
				0.0			
1 4				0.0			
			NR	—			
1 5			60"/60"	0.0	160"-233" SAA		
				0.0	233"-238" Wet, Black, Hard, Clay, Some Organics, Trace F Sand, No Coal/Asphalt	PEAT	
1 6				0.0			
				0.0			
1 7				0.0	238"-240" Wet, Gray, Loose, F-C Sand Little F Gravel (Rounded), No Coal/Asphalt		
				0.0			
1 8				0.1			
				0.9			
1 9				0.0			
				0.0			
2 0					20' EOB		

Remarks:

Sample Types	Consistency vs. Blowcount / Foot				
S -- Split-Spoon	Granular (Sand & Gravel)		Fine Grained (Silt & Clay)		and - 35 -50%
U -- Undisturbed Tube	V. Loose: 0-4	Dense: 30-50	V. Soft: <2	Stiff: 8-15	some - 20-35%
C -- Rock Core	Loose: 4-10	V. Dense:: >50	Soft: 2-4	V. Stiff: 15-30	little - 10-20%
A -- Auger Cuttings	M. Dense: 10-30		M. Stiff: 4-8	Hard: > 30	trace - <10%
					moisture, density, color, gradation

PARSONS

Well Construction Detail (Single Cased - Road Box)

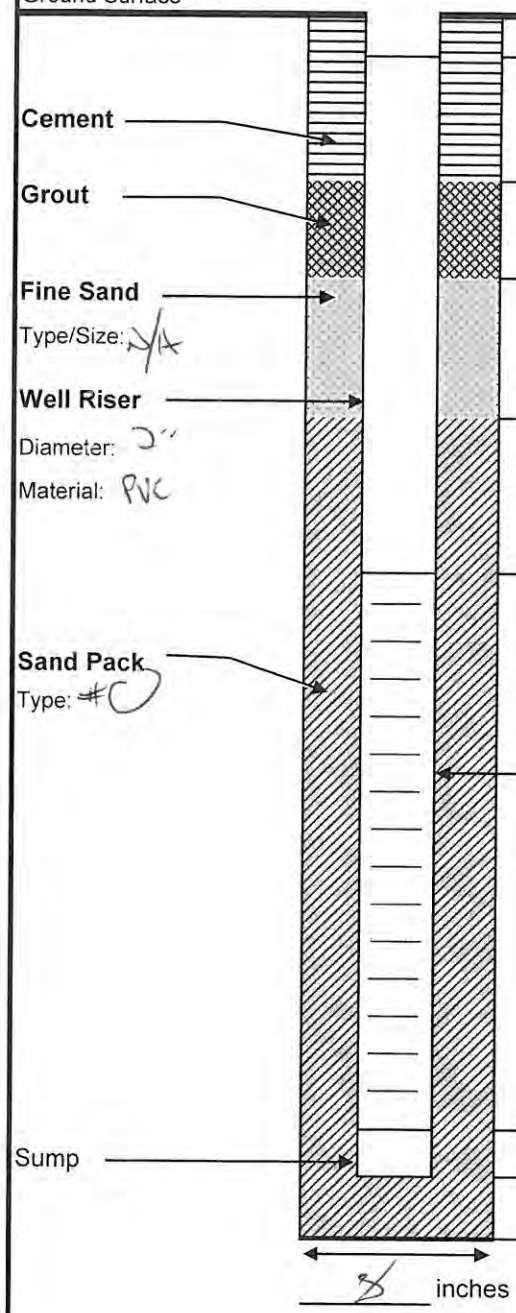
Client: USACE

Well ID: ~~5~~TMM-57-GW-MW01

NJBWA Permit No. E201510654

Date Well Installed: 10/2/15

Location: Parcel 57



	Depth Below Ground Surface (ft)
Ground Surface	0.0
Top of Well Casing 0.3 ft	
Top of Grout	1.0
Top of Fine Sand	N/A
Top of Sand Pack	7
Top of Screen	10
Well Screen Diameter: 2" Slot Size: 0.01 Material: PVC	
Bottom of Screen	20
Bottom of Sump	N/A
Bottom of Borehole	20

Top of Confining Unit (if present): N/A

PARSONS

Page _____ of _____

WELL DEVELOPMENT REPORT

CLIENT: FTMM

WELL ID: 57-MW-01

PROJECT NAME: FTMM

DATE: 10/6/15

LOCATION: Oceanport, NJ

PROJECT NO.: 748810-03000

DRILLING METHOD (s): HSA

PUMP METHOD (s): whale pump

SURGE METHOD (s):

INSTALLATION DATE: 10/5/15

INSPECTOR: Parsons

CONTRACTOR: ECDI

CREW: C. WATSON

START DEVELOPMENT DATE: 10/6/15

END DEVELOPMENT DATE: 10/6/15

WATER DEPTH (TOC): 11.83 ft

WELL DIA. (ID CASING): 2" ft

BORING DIAMETER: 8" ft

INSTALLED POW DEPTH(TOC): 20 ft

MEASURED POW DEPTH(TOC): 20 ft

SILT THICKNESS: — ft

POW AFTER DEVELOPMENT: 20 ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.33 GAL. = A

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR - WELL DIAM. FACTOR) X 0.3 = 7.34 GAL. = B

SINGLE STANDING WATER VOLUME = A + B = ... 8.67 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C ..... 43.36 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH (std)	CONDUCTIVITY (_____)	TEMP (____)	COLOR	TURBIDITY (ntu)	OTHER
Pump	1410	1420	10	5	6.53	\	18.09	Brown	3329	
pump	1420	1430	20	15	6.87	\	18.10	light brown	19.6	
surge	1430	1440	30	23	6.94	\	18.07	clear	126	
pump	1440	1450	40	33	6.91	\	18.06	clear	18.9	
surge	1450	1500	50	42	6.92	\	18.10	clear	22.1	
pump	1500	1510	60	45	6.90	\	18.08	clear	6.4	
TOTALS/FINAL										

COMMENTS:

PARSONS

Well Construction Detail (Single Cased - Stickup)

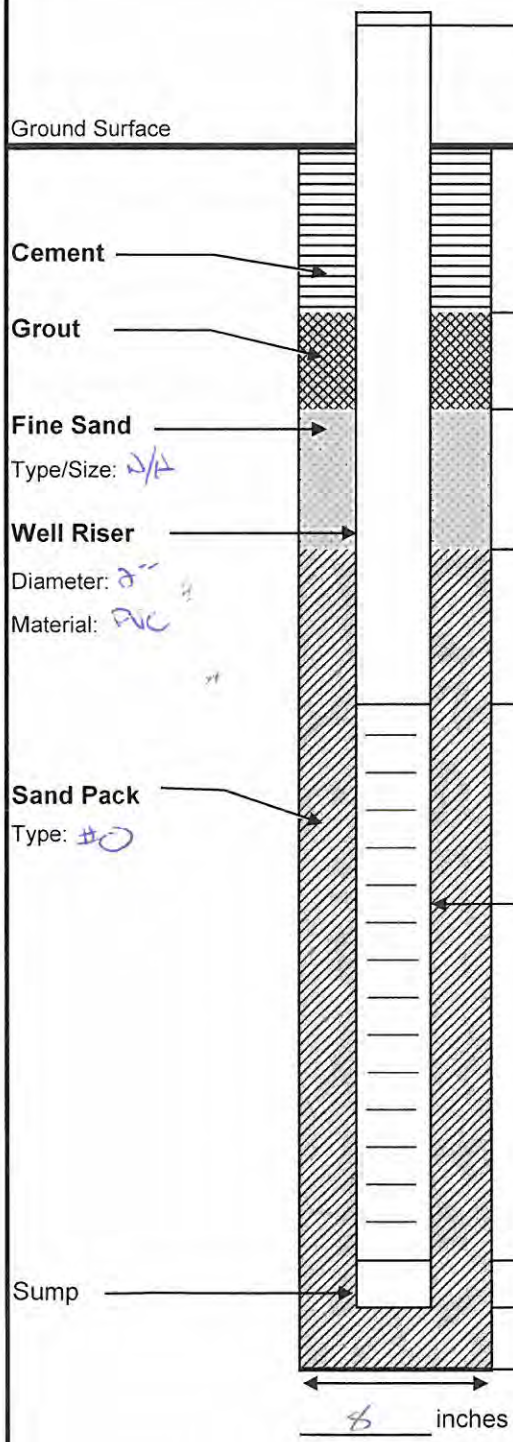
Client: USACE

Well ID: FTMM-57-GW-MW03

NJBWA Permit No. E20151065 5

Date Well Installed: 10/3/15

Location: Parcel 57



	Depth Below Ground Surface (ft)
Top of Well Casing: + 2.75 ft	
Ground Surface	0.0
Top of Grout	0.5
Top of Fine Sand	N/A
Top of Sand Pack	7
Top of Screen	10
Well Screen Diameter: 2" Slot Size: 0.01 Material: PVC	
Bottom of Screen	20
Bottom of Sump	N/A
Bottom of Borehole	20

Top of Confining Unit (if present): N/A

PARSONS

Page 1 of 1

WELL DEVELOPMENT REPORT

CLIENT: FTMM ~~AE~~

WELL ID: FTMM-57-MW-02

PROJECT NAME: RI

DATE: 10/7/15

LOCATION: Oceanport, NJ

PROJECT NO.:

DRILLING METHOD (s): HSA

PUMP METHOD (s): whale pump

SURGE METHOD (s):

INSTALLATION DATE: 10/2/15

INSPECTOR: PARSONS

CONTRACTOR: ECDI

CREW: C. Wilson

START DEVELOPMENT DATE: 10/7/15

END DEVELOPMENT DATE:

WATER DEPTH (TOC): 12.11 ft

WELL DIA. (ID CASING): 2" ~~ft~~

BORING DIAMETER: 5" ~~ft~~

INSTALLED POW DEPTH(TOC): 20 ft

MEASURED POW DEPTH(TOC): 23.6 (stick up) ft

SILT THICKNESS: – ft

POW AFTER DEVELOPMENT: 23.6 ft

DIAMETER FACTORS (GAL/FT):

DIAMETER (IN):	2	3	4	5	6	7	8	9	10	11	12
GALLONS/ FT:	0.163	0.367	0.654	1.02	1.47	2.00	2.61	3.30	4.08	4.93	5.87

STANDING VOLUME INSIDE WELL = WATER COLUMN X WELL DIAMETER FACTOR = 1.49 GAL. = A

STANDING WATER IN ANNULAR SPACE =
WATER COL. BELOW SEAL(ft) X (BORING DIAM. FACTOR - WELL DIAM. FACTOR) X 0.3 = 8.43 GAL. = B
11.49 x (2.61 - 0.163) x 0.3

SINGLE STANDING WATER VOLUME = A + B = ... 9.92 GAL. = C

MINIMUM VOLUME TO BE REMOVED = 5 X C ..... 49.6 GALS.

ACTIVITY	START TIME	END TIME	ELAPSED TIME	GALLONS REMOVED	pH (std)	CONDUCTIVITY ( )	TEMP ( )	COLOR	TURBIDITY (ntu)	OTHER
Pumping	09:00	0905	5min	5	4.30	\	18.81	Brown	N/A	out of Range
	0905	0910	10min	10	4.34	\	18.56	Brown	N/A	out of Range
	0910	0915	15min	15	4.50	\	18.17	Brown	N/A	out of Range
	0915	0925	25min	20	4.65	\	18.17	Brown	1141	
	0925	0935	35min	25	4.76	\	18.18	Brown	930	
	0935	0945	45min	35	4.81	\	18.18	Brown	801	
	0945	0955	55min	50	5.02	\	18.15	TAN	760	
	0955	1005	65min	60	5.17	\	18.16	clear/TAN	88.2	
	1005	1010	70min	65	5.24	\	18.16	Clear/TAN	50.1	
	1010	1020	80min	75	5.20	\	18.16	clear/TAN	29.6	
	1020	1040	100min	95	5.21	\	18.16	clear	12.9	
~~TOTALS/FINAL~~	1040	1045	115min	105	5.22	\	18.16	clear	11.7	

COMMENTS:

LOW FLOW GROUND WATER SAMPLING - DATA SHEET

SHEET 1 OF 1

PROJECT SITE/LOCATION: ~~FTMM~~ Parcel 57
CONSULTING FIRM: PARSONS
DATE: 11/23/15
FIELD PERSONNEL: A. DiIonno
WEATHER: 40°F, Cloudy

MONITOR WELL #: FTMM-57-MW01
WELL DEPTH: 19.90 feet
PUMP INTAKE DEPTH: 15.1 ft to TOC
WELL PERMIT #: E201510054
WELL DIAMETER: 2 inches
SCREENED/OPEN INTERVAL: 10-20 ft to TOC

PID/FID READINGS:
BACKGROUND: 0.0 ppm
BENEATH OUTER CAP: 0.0 ppm
BENEATH INNER CAP: 0.0 ppm

GAUGING/PUMPING INFORMATION:
INITIAL DEPTH TO WATER (BEFORE PUMP INSTALLATION): 10.13 ft to TOC
DEPTH TO PRODUCT: N/A ft to TOC ; PRODUCT THICKNESS: N/A ft
MAKE/MODEL OF PUMP: QED Sample Pro 1.75" Bladder Pump

WATER QUALITY METER INFORMATION:
INSTRUMENT MAKE/MODEL: YSI 6920
SERIAL #: 01M0724AB
TEMP. CORRECTION VALUE: -0.11°C

Time	PURGING	SAMPLING	pH (units) READING	pH CHANGE	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY CHANGE	REDOX POTENTIAL (mV) READING	REDOX POTENTIAL CHANGE	DISSOLVED OXYGEN (mg/L) READING	DISSOLVED OXYGEN CHANGE	TURBIDITY (NTU) READING	TURBIDITY CHANGE	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1002	x		6.02		1.369		-74.9		4.93		909.3		13.20		200	10.27
1007	x		6.45		1.469		-87.2		3.77		1117.4		15.48		100	10.63
1012	x		6.65		1.394		-89.2		3.69		1116.9		15.41		100	10.80
1017	x		6.65		1.355		-85.5		3.55		134.6		15.09		100	10.90
1022	x		6.64		1.287		-88.2		3.41		87.8		14.87		100	10.85
1027	x		6.63		1.235		-91.7		3.13		74.6		14.79		100	10.85
1032	x		6.62		1.199		-96.9		2.81		68.5		14.92		100	10.85
1037	x		6.62		1.174		-96.8		2.55		54.5		14.80		100	10.85
1042	x		6.61		1.163		-98.1		2.41		53.1		14.56		100	10.85
1047	x		6.61		1.143		-96.1		2.26		40.6		14.50		100	10.85
1052	x		6.59		1.140		-95.9		2.19		38.1		14.49		100	10.85
1057	x	x	6.59		1.135		-96.3		2.11		36.2		14.24		100	10.85

- Clean Turbidity optics

SAMPLING INFORMATION:
Sample ID: FTMM-57-GW-MW01-15.1
Sample Time: 1057
Comments: —

QA/QC INFORMATION:
Duplicate Collected?: Yes & Split
MS/MSD Collected?: No
Filtering?: Yes

ADDITIONAL OBSERVATIONS/COMMENTS:
Clarity: Clear
Odor: None
Other: —

*INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN:
pH: ± 0.1 units ; Spec. Conductivity: ± 3% ; ORP: ± 10mV ; D.O.: ± 10% ; Turbidity: ± 10% (or <1 NTU) ; Temperature: ± 3%. ; Water Level Change: < 0.3 ft

ANALYST NAME & SIGNATURE: Alex DiIonno Alex DiIonno
DATE: 11/23/15
REVIEWER NAME & SIGNATURE:
DATE:

LOW FLOW GROUND WATER SAMPLING - DATA SHEET

SHEET 1 OF 1

PROJECT SITE/LOCATION: FTMM Parcel 57
DATE: 11/24/15
WEATHER: 38°F clear
CONSULTING FIRM: PARSONS
FIELD PERSONNEL: C. Watson

MONITOR WELL #: PAR57-MW02
WELL PERMIT #:
WELL DEPTH: 22.75 feet
WELL DIAMETER: 2 inches
PUMP INTAKE DEPTH: 15.25 ft to TOC
SCREENED/OPEN INTERVAL: 12.75 - 22.75 ft to TOC

PID/FID READINGS:
BACKGROUND: 0 ppm
BENEATH OUTER CAP: 0 ppm
BENEATH INNER CAP: 0 ppm

GAUGING/PUMPING INFORMATION:
INITIAL DEPTH TO WATER (BEFORE PUMP INSTALLATION): 12.43 ft to TOC
DEPTH TO PRODUCT: — ft to TOC ; PRODUCT THICKNESS: — ft
MAKE/MODEL OF PUMP: QED Sample Pro

WATER QUALITY METER INFORMATION:
INSTRUMENT MAKE/MODEL:
SERIAL #:
TEMP. CORRECTION VALUE:

Time	PURGING	SAMPLING	pH (units) READING	pH CHANGE	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY CHANGE	REDOX POTENTIAL (mV) READING	REDOX POTENTIAL CHANGE	DISSOLVED OXYGEN (mg/L) READING	DISSOLVED OXYGEN CHANGE	TURBIDITY (NTU) READING	TURBIDITY CHANGE	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1040	X		5.28		1.074		73.8		5.97		174.7		14.95		225	12.51
1045	X		5.22		1.054		87.5		4.27		173.2		15.78		225	12.52
1050	X		4.89		1.051		116.8		5.83		114.0		16.06		225	12.52
1055	X		4.70		1.042		130.4		5.59		20.5		15.85		225	12.52
1100	X		4.69		1.030		143.4		6.02		23.3		16.12		225	12.52
1105	X		4.69		1.029		146.5		6.09		22.8		15.88		225	12.51
1110	X		4.68		1.027		149.7		6.04		22.2		15.97		225	12.52
1115		X	4.67		1.028		144.8		6.10		21.9		15.89		225	12.52

SAMPLING INFORMATION:
Sample ID: PAR57-GW-MW02-15.25
Sample Time: 11:15
Comments: —

QA/QC INFORMATION:
Duplicate Collected?: No
MS/MSD Collected?: No
Filtering?: mtls

ADDITIONAL OBSERVATIONS/COMMENTS:
Clarity: clear
Odor: none
Other: —

*INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN:
pH: ± 0.1 units ; Spec. Conductivity: ± 3% ; ORP: ± 10mV ; D.O.: ± 10% ; Turbidity: ± 10% (or <1 NTU) ; Temperature: ± 3%. ; Water Level Change: < 0.3 ft

ANALYST NAME & SIGNATURE: [signature] DATE: 11/24
REVIEWER NAME & SIGNATURE: DATE:

LOW FLOW GROUND WATER SAMPLING - DATA SHEET

SHEET 1 OF 1

PROJECT SITE/LOCATION: PAR 57
CONSULTING FIRM: PARSONS
DATE: 11/24/15
FIELD PERSONNEL: C-Watson
WEATHER: 40°F Clear

MONITOR WELL #: PAR57-MW02
WELL DEPTH: 22.75 feet
PUMP INTAKE DEPTH: 20.25 ft to TOC
WELL PERMIT #:
WELL DIAMETER: 2 inches
SCREENED/OPEN INTERVAL: 12.75-22.75 ft to TOC

PID/FID READINGS:
BACKGROUND: 0 ppm
BENEATH OUTER CAP: 0 ppm
BENEATH INNER CAP: 0 ppm

GAUGING/PUMPING INFORMATION:
INITIAL DEPTH TO WATER (BEFORE PUMP INSTALLATION): 12.52 ft to TOC
DEPTH TO PRODUCT: — ft to TOC ; PRODUCT THICKNESS: — ft
MAKE/MODEL OF PUMP: QED Sample pro

WATER QUALITY METER INFORMATION:
INSTRUMENT MAKE/MODEL:
SERIAL #:
TEMP. CORRECTION VALUE:

Time	PURGING	SAMPLING	pH (units) READING	pH CHANGE	SPECIFIC CONDUCTIVITY (mS/cm) READING	SPECIFIC CONDUCTIVITY CHANGE	REDOX POTENTIAL (mV) READING	REDOX POTENTIAL CHANGE	DISSOLVED OXYGEN (mg/L) READING	DISSOLVED OXYGEN CHANGE	TURBIDITY (NTU) READING	TURBIDITY CHANGE	TEMPERATURE (degrees C) READING	TEMPERATURE CHANGE	PUMPING RATE (ml/min)	DEPTH TO WATER (ft below TOC)
1130	X		3.95		1.258		201.7		5.61		79.4		16.13		225	12.52
1135	X		4.12		1.135		215.1		4.83		84.8		16.46		225	12.52
1140	X		4.54		1.044		180.9		6.15		4.3		17.21		225	12.52
1145	X		4.59		1.035		167.4		5.48		3.2		17.37		225	12.52
1150	X		4.56		1.038		171.5		5.41		3.0		17.39		225	12.52
1155	X		4.57		1.037		168.9		5.38		2.8		17.40		225	12.52
1200		X	4.57		1.036		170.4		5.37		2.9		17.38		225	12.52

SAMPLING INFORMATION:
Sample ID: PAR57-GW-MW02-20.25
Sample Time: 1200
Comments: —

QA/QC INFORMATION:
Duplicate Collected?: NO
MS/MSD Collected?: NO
Filtering?: Yes

ADDITIONAL OBSERVATIONS/COMMENTS:
Clarity: clear
Odor: none
Other:

*INDICATOR PARAMETERS HAVE STABILIZED WHEN 3 CONSECUTIVE READINGS ARE WITHIN:
pH: ± 0.1 units ; Spec. Conductivity: ± 3% ; ORP: ± 10mV ; D.O.: ± 10%; Turbidity: ± 10% (or <1 NTU) ; Temperature: ± 3%. ; Water Level Change: < 0.3 ft

ANALYST NAME & SIGNATURE: C Watson — DATE: 11/24/15
REVIEWER NAME & SIGNATURE: — DATE: