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Consolidated Edison Company of New York, Inc.

FINAL REMEDIAL DESIGN REPORT

Former Pemart Avenue Works MGP Site
Peekskill, New York
NYSDEC Site No. 360166

December 2020

I, Jason D. Brien, P.E., certify that I am currently a New York State registered professional engineer and that this Remedial Design was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

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REMEDIAL DESIGN REPORT

Former Pemart Avenue Works MGP Site
Peekskill, New York

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ACRONYMS AND ABBREVIATIONS

AAR	Alternatives Analysis Report
Arcadis	Arcadis of New York, Inc.
bgs	Below Ground Surface
bss	Below Sediment Surface
BTEX	Benzene, Toluene, Ethylbenzene, Xylene
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CHASP	Contractor Health and Safety Plan
Cubic feet	cf
Cubic yards	cy
Con Edison	Consolidated Edison Company of New York, Inc.
DER-10	Division of Environmental Remediation-10 Technical Guidance for Site Investigation and Remediation
EGP	Electrical Generating Plant
FER	Final Engineering Report
FWMR	Fisheries, Wildlife and Marine Resources
H:V	horizontal to vertical
LTTD	low-temperature thermal desorption
mg/kg	Milligram Per Kilogram
MGP	Manufactured Gas Plant
MHHW	Mean High Water
µg/l	micrograms per liter
MLLW	Mean Low Water
MNR	Metro North Railroad
MTA	Metropolitan Transportation Authority
MTBE	Methyl tert-butyl ether
NAPL	Non-Aqueous Phase Liquid
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSI	Ocean Surveys, Inc.

OU	Operable Unit
PAHs	Polycyclic Aromatic Hydrocarbons
PDI	Pre-Design Investigation
PID	Photo Ionization Detector
RAOs	Remedial Action Objectives
RD Report	Remedial Design Report
ROW	Right-of-Way
RTK-GPS	Real-Time Kinematic Global Positioning System
SCGs	Standards, Criteria and Guidance Values
SCO	Soil Cleanup Objectives
SMP	Site Management Plan
SVOC	Semi-Volatile Organic Compound
TOC	Total Organic Carbon
TOGS	Technical & Operational Guidance Series
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VCA	Voluntary Cleanup Agreement
VOCs	Volatile Organic Compounds
6 NYCRR	Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York

1 INTRODUCTION

This Remedial Design Report (RD Report) has been prepared to support the implementation of the New York State Department of Environmental Conservation- (NYSDEC-) selected remedy for Operational Unit 2 (OU-2) at the Consolidated Edison Company of New York, Inc. (Con Edison) Former Pemart Avenue Works Manufactured Gas Plant (MGP) Site located in Peekskill, NY, Site No. V00566 (the site). The selected remedy was presented in NYSDEC's August 2014 Decision Document (NYSDEC. 2014).

This design was prepared in accordance with the Multi-Site Voluntary Cleanup Agreement (VCA) Transition Order on Consent and Administrative Settlement Index Number CO 0-20180516-519 between Con Edison and (NYSDEC. 2018). This RD Report has also been developed in accordance with NYSDEC's Division of Environmental Remediation-10 Technical Guidance for Site Investigation and Remediation (DER-10) (NYSDEC. 2010a).

Activities identified in this RD Report will be performed under the approval and oversight of the NYSDEC and the New York State Department of Health (NYSDOH).

1.1 Purpose

The purpose of this RD Report is to present the remedial approach and design for completing the selected remedy for the site. This RD Report, the associated drawings, Technical Specifications, and supporting plans will serve as the basis for the contract documents once this design is considered final and to be considered of biddable quality.

This RD Report includes a narrative description of the design program, OU-2 Design Drawings and Technical Specifications (Appendices A and B, respectively), a site-specific Community Air Monitoring Plan (CAMP, Appendix C), a Community and Environmental Response Plan (CERP, Appendix D), and a Contingency Plan (Appendix E)

1.2 Report Organization

This RD Report is organized into the following sections:

- Section 1 – Introduction: Presents the purpose and scope of the RD Report as well as the site description and project background.
- Section 2 – Basis of Design: Presents the remedial action objectives (RAOs), a summary of the remedial components, and the basis of design for the remedial design components
- Section 3 – Pre-Remediation Activities: Describes citizen outreach efforts, access and permitting requirements/activities, monitoring well decommissioning, as well as the permitting and public outreach processes.
- Section 4 – Remediation Activities: Presents the planned approach to complete the remedial program described in the Decision Document.
- Section 5 – Post-Remediation Reporting: Describes the reporting, monitoring, and administrative activities to be completed following remedial construction.

- Section 6 –Preliminary Remedial Action Schedule: Presents a preliminary schedule for implementing the remedial program, including the remaining remedial design activities, project permitting, contractor procurement, remedial construction, and post-construction reporting.
- Section 7 – References: Lists the references cited in this RD Report.

1.3 Site Description and History

1.3.1 Site Location and Description

The site is comprised of the Former Pemart Avenue Works MGP site and the former electric generating plant (EGP) and includes approximately 1.9 acres located on North Water Street (formerly Old Pemart Avenue), northwest of the intersection of Main Street and Water Street in the City of Peekskill, Westchester County, New York. A Site Location Map is included as Figure 1-1. The site is currently used for commercial and industrial purposes, with the exception of residential uses at the Jan Peek Homeless Shelter (200 North Water Street). In general, commercial businesses surround the site to the northwest and southeast, and a private residence/commercial business located at 400 North Main Street borders the site to the south. The Briarcliff-Peekskill Parkway is located north/northeast of the site and the Hudson Line of the Metropolitan Transportation Authority (MTA) Metro-North Railroad (MNR) rail transects the site in a general north-south direction. The Peekskill Landing State Superfund site is located south of the former MGP site along the waterfront. The Peekskill Landing property was used for a variety of purposes including office space, an art foundry, a lumber yard, boat repairing/storage facility, stone crushing operation, stove works, and coal storage. Peekskill Landing was recently redeveloped as a community park following remedial activities completed in 2010. The Annsville Creek confluence with the Hudson River is located approximately 300 feet upstream (north) of the site boundary.

As indicated above this document presents the OU-2 remedial design. The remediation area, OU-2, consists of the upland area located west of the MNR ROW as well as sediments within Peekskill Bay containing MGP-related impacts.

1.3.2 Public Water Supply and Recreational Water Access

The City of Peekskill obtains its water from two sources. Peekskill's primary source originates in the Town of Putnam Valley with a second emergency source from a neighbouring community, via the Catskill Aqueduct, used if the primary source is unavailable. Water from these sources is pumped to the Campfield Reservoir in Peekskill prior to being filtered and treated by the City of Peekskill Water Department.

Recreational access points to surface water within a one-mile radius of the site consist of three boat launches:

- One trailers boat launch located in Riverfront Green Park approximately 0.4 miles south of the site
- A boat duct located in Peekskill Landing Park approximately 0.2 miles south of the site
- A hand launch located at Hudson River Expeditions approximately 0.6 miles north of the site

Information included in NYSDEC's DECinfo Locator Geographic Information Services database (https://gisservices.dec.ny.gov/gis/dil/) along with Con Edison's recent knowledge of Peekskill Landing

Park development was used to obtain this information. Figure 1-2 shows the locations of these features relative to the site location.

1.3.3 Site History and Operation

Historical MGP operations were conducted at the site between 1899 and 1931 and primarily included the production of manufactured gas using the Lowe carbureted water gas process. In 1899 the Peekskill Gas Company (also previously named the Peekskill Lighting and Railroad Company, and the Westchester Lighting Company) commenced MGP operations, producing approximately 11 million cubic feet (cf) of carbureted gas per year. The gas production progressively increased from 11 million cf in 1899 to 116 million cf in 1930. Gas production continued through July 1, 1931, when the plant was placed on stand-by service status for several years.

The former EGP was operated by the Westchester Lighting Company from 1905 to approximately 1950. The building on the former EGP property was used to house electric generators, as well as other equipment and machinery associated with the EGP operations. The western portion of the site (i.e., where the former EGP was located) was sold in 1943. The former EGP building was expanded and occupied by the Ednal Company Optical Goods. After MGP closure, the site was operated by Westchester Lighting Company and later by Con Edison as a gas holder station and for gas distribution (until 1966). The remaining portion of the former MGP site was sold in 1978, with the exception of a small parcel south of North Water Street that was retained by Con Edison for use as a natural gas regulator station. The former gas regulator facility has since been removed and a new regulator has been installed in a subsurface vault beneath the sidewalk along the west side of North Water Street.

Currently, the battery house (a former EGP structure) and gas plant building remain at the site. At the time of this remedial evaluation, the gas house is not occupied. In addition, the Jan Peek Homeless Shelter is operating in a building on the former EGP property north of the former MGP property.

1.4 Site Characterization

This section presents an overall site characterization and a summary of the nature and extent of impacted media at the site based on the results obtained for the site investigation activities described in the previous subsection. Previous investigations consisted of the following:

- Remedial investigation activities performed by ENSR/AECOM in February 2007, as detailed in the Remedial Investigation Report (ENSR/AECOM, 2007).
- Remedial investigation activities performed by ENSR/AECOM in March 2008, as detailed in the Remedial Investigation Addendum, (ENSR/AECOM, 2008).
- Supplemental Sediment Investigation performed by Arcadis in 2012, as detailed in the Supplemental Sediment Investigation Report, (Arcadis, 2012).

The site characterization consists of an overview of site geology and hydrogeology followed by a summary of the nature and extent of impacts identified at the site. Detailed information regarding the site characterization is presented in above referenced reports.

1.4.1 Geology and Hydrology

A summary of the upland geology, hydrology and sediment geology is presented in the following subsection.

1.4.1.1 Upland Geology

The site is underlain by five primary lithologic units all overlying bedrock. The lithologies all consist of glaciofluvial sediments deposited in the Hudson River Valley along Peekskill Bay. These soils consist primarily of silt with interbedded layers of sand, clay, and peat. The five lithologic units encountered at the site, in descending order, consist of the following:

- Fill – The fill is present throughout the site to depths varying from approximately 3 to 20 feet below ground surface (bgs). The fill is comprised of an heterogeneous mixture of organic rich granular materials including silt, sand, gravel and various debris (e.g., glass, wire, bottle caps, plastic, clinker, coal fragments, wood fragments, concrete, steel plates, brick fragments, etc.). The water table is generally found within this unit.
- Upper Sand – The upper sand unit is located beneath the fill unit with a thickness varying from 2 to 18 feet. The upper sand unit is located primarily in the southern portion of the site and is absent in the eastern portion where the fill unit extends to the upper silt/clay, which is the next underlying unit. The upper sand unit is located from 15 to 30 feet bgs and is primarily comprised of fine- to medium-grained sand that is often very dense (blow counts typically 50 blows for <4 inches of split spoon advancement); however, some silt, coarse sand and/or fine gravel are present in lesser quantities.
- Upper Silt/Clay – The upper silt/clay unit is present beneath most of the site with a thickness that varies from 1 to 20 feet. The upper silt/clay unit was not observed in a small area in the eastern portion of the site where the overburden pinches out against the adjacent bedrock outcrops. The upper silt/clay unit is located between 7 to 22 feet bgs and varies from a sandy-silt unit to a silty-clay unit to alternating clay and silt. Isolated lenses of peat, sand and gravel occur sporadically in the upper silt/clay unit. Based on the low-permeability nature of this unit, a majority of non-aqueous phase liquid (NAPL) observed in the upland portion of the site is located in the fill and upper sand units, on top of the upper silt/clay.
- Lower Sand – The lower sand unit is present beneath the entire site with a thickness varying from 1 to 7 feet. This unit is located between 17 and 40 feet bgs and is primarily comprised of fine to coarse grained sand.
- Lower Silt/Clay – The lower silt/clay unit is present beneath the entire site on top of the bedrock layer with a thickness varying from 2 to 10 feet. This unit is located between 24 and 43.5 feet bgs and ranges from silty-sand with clay, to clayey-silt, to clay.
- Bedrock – Bedrock outcrops in the eastern portion of the site and extends beneath the unconsolidated soil and sediments that underlie most of the site and south of the site. Accordingly, bedrock occurs from grade in the north and east and ranges to a depth of up to 47.5 feet bgs in the southwestern portions of the site. A weathered bedrock zone with a thickness of 2.5 to 10 feet, was observed above the solid bedrock across most of the site. Bedrock is comprised of micaceous dark grey gneiss with light grey felsic bands.

1.4.1.2 Hydrogeology

Groundwater flow beneath the site is primarily within the above-mentioned geologic units. Groundwater flows to the southwest towards Peekskill Bay and the Hudson River. Groundwater levels within OU-1 and OU-2 are influenced to some degree by tidal fluctuations in the river. Recharge to the groundwater system at the site is primarily from three sources:

- Runoff from the elevated areas to the east. Some of this runoff is channeled into storm drains that drain the site.
- Infiltration of precipitation.
- Groundwater from bedrock fractures either as springs above the land surface or as direct flow to the aquifer system.

As indicated in the previous subsection, the water table lies within the fill unit at approximately 3 to 8 feet bgs. The aquifer system beneath the site consists of an upper aquifer separated from a lower aquifer by an intermediate low-permeability aquitard (i.e., upper silt/clay unit), and a lower aquifer, which is generally separated from the bedrock aquifer by a deeper low permeability unit (i.e., the lower silt/clay unit). The site is relatively flat, so significant overland surface runoff is not likely from the site to the storm drains.

Groundwater at the site is classified as brackish (i.e., has more salinity than freshwater but not as much salinity as seawater).

1.4.1.3 Sediment Geology

The sediments in the Peekskill Bay of the Hudson River in the vicinity of the site are generally comprised of interbedded layers of organic silt, sand, gravel, silt, and clay. The river sediments are an extension of the soil lithologies that comprise the upland areas of the site. A primary distinction is that the upper sediments become finer and thicken away from the near shore areas. Geologic layers present beneath Peekskill Bay (in descending order) consist of the following:

- Upper Silt – This soft riverine silt is present at depths of approximately 2 to 12 feet below the sediment surface (bss). This unit is primarily comprised of dark brown to gray-black organic rich silt mixed with varying amounts of sand, gravel, detritus and assorted debris (e.g., clinker, coal fragments, wood from pilings and barge structures, metal, brick fragments, etc.). Near the shore, the upper sediments are coarser and generally consist of fine to medium sand and trace to some silt and away from the shore the upper sediments were generally consist of silt and clay with little to trace fine sand.
- Silt – This silt unit is located beneath the soft upper silt with a thickness varying from 1 to 16 feet. This unit is comprised of brown to dark gray silt with varying amounts of root matter. The top of the silt unit is located approximately 1 to 10 feet bss and the bottom extends between 8 and 20 feet bss.

  The silt unit also contains isolated lenses of sand, silty clay and peat. Where present, sand lenses primarily consist of gray fine to medium-grained sand and vary in thickness from 2 to 8 feet. Based on their limited occurrence, the lenses appear to be present in former dredge channels and/or scour channels.

- Peat and Silt/Clay – A silt/clay unit, peat unit, or a silt/clay unit containing peat is located below the silt unit or sand lenses. The silt/clay unit is present beneath most of the investigated area within Peekskill Bay and is comprised primarily of firm brown silt to stiff gray clay. Where the silt/clay unit is not present, either a peat unit or a silt/clay unit containing peat is present. The silt/clay unit is contiguous with and is the submarine extension of the low-permeability silty/clay unit of the upland area described above and acts to prevent downward migration of NAPL. Accordingly, where present, NAPL is located on top of this silt/clay unit both in the upland and beneath the river.

1.4.2 Nature and Extent of Impacts

Coal tar NAPL with lesser amounts of petroleum-related NAPL were observed at the site. Coal tar is the primary byproduct of MGP operations and is characterized as a dense dark liquid with an acrid odor. Due to these very distinct physical attributes, the presence or absence of coal tar is typically easy to identify in the field. Coal tar occurs at the site at apparent saturation levels to blebs/globules to sheens in subsurface soils and sediments. Petroleum fuel oils were used as feedstock during the operations of both the MGP and the EGP. Petroleum-type oil occurs at the site and is described as oil-like materials and/or oil-like or petroleum-like odors in subsurface soils.

Because coal tar is denser than water, when it is released to the environment, coal tar typically migrates vertically until it encounters a low-permeability material. At the site, the NAPL has migrated vertically downward to the top of the low-permeability upper silt/clay unit and then migrated laterally following the slope of the top of this unit. The coal tar also accumulated in pools in localized depressions on the top of the upper silt/clay layer. The low-permeability nature of the upper silt/clay unit has prevented the NAPL from migrating deeper, and impacting soil, underlying sediments, and groundwater. Unlike coal tar, fuel oil is lighter than water and when released, will migrate vertically until it encounters the water table, and then spreads laterally.

In addition to the respective physical characteristics, coal tar contains two primary classes of chemicals: volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). The most prevalent VOCs consist of benzene, toluene, ethylbenzene, and xylenes which are referred to collectively as BTEX. The most prevalent SVOCs are polycyclic aromatic hydrocarbons (PAHs). An example of a PAH compound is naphthalene, which was a key ingredient in mothballs. The PAHs are primarily responsible for producing the strong odor associated with coal tar, which in some cases has a mothball-like odor. Additionally, BTEX and PAH compounds are similarly associated with petroleum fuel oil.

While both of these chemical classes are soluble in water, VOCs dissolve more readily than the SVOCs. As a result of the solubility, groundwater in contact with coal tar and soil containing coal tar residues contains elevated concentrations of both VOCs and SVOCs. Because coal tar typically contains elevated levels of these compounds, soil samples and groundwater monitoring wells that contain coal tar need not always be analyzed; rather the levels of one or more BTEX and PAH compounds are assumed to be above applicable standards, criteria and guidance values (SCGs).

In addition, due to a higher solubility, the VOCs volatilize more readily than the SVOCs. Accordingly, the VOCs may volatilize from soil with coal tar or coal tar impacted soils and or groundwater.

Coal tar NAPL, petroleum fuel oil residuals, and BTEX/PAHs are considered the COCs for this site. Physical evidence of coal tar, petroleum fuels, and elevated concentrations of BTEX and PAHs were

used as the parameters for defining the extent of MGP/EGP-related impacts at the site. The following subsections present a summary of the nature and extent of environmental concerns identified for the site based on these COCs and the presence of NAPL and petroleum fuel residuals.

1.4.2.1 NAPL Characterization and Distribution

The NAPL encountered at the site presents a distinguishing petrogenic (i.e. associated with fossil fuels such as petroleum, coal) and/or pyrogenic (i.e., produced by the combustion of fuels such as petroleum, coal) nature. The NAPL presents characteristics similar to those of tars from a low-temperature combustion process, such as the water gas process.

In general, NAPL impacts were encountered in soil samples collected throughout most of the former MGP area. NAPL was observed in soil samples collected in southern portion of the EGP, as well as the majority of the former MGP property extending west from the 30,000 and 100,000 cf gas holders formerly located just east of North Water Street. NAPL impacts on the former holder parcel (i.e., east of North Water St.) were not encountered below the top of the silt and clay or dense sand units. NAPL-impacted soil is present to the west, beneath the adjacent railroad tracks and the adjacent near-shore sediments of Peekskill Bay. NAPL impacts were observed in soil samples to depths of 20 feet bgs where the upper silt/clay unit is encountered. NAPL or MGP-related impacts have not been detected in or below the uppermost portion of the upper silt/clay or dense sand units.

As described above, NAPL impacts from the upland portion of the site migrated laterally primarily via gravity to near-shore areas of Peekskill Bay. Similar to the upland portion of the site, NAPL was not observed below the silt/clay unit in Peekskill Bay sediment. Coal tar NAPL and scattered globules are encountered in sediments of Peekskill Bay at depth intervals ranging between 0.5 and 18 feet bss within the area identified as “Extent of Impacts”. Shallow visual impacts (i.e., sheens and odors) were noted close to shore to the north and south of the outside the area where visual indications of NAPL were encountered. Note that there are storm drains that discharge into Peekskill Bay from a 12-inch bypass line located near sediment sample location SD-34. The visual MGP-related impacts are located within an approximately one acre near-shore area within Peekskill Bay located downgradient of the site.

As indicated previously, the former MGP used the Lowe carbureted water gas process. Although typically denser than water, compared to NAPL associated with coal carbonization process, NAPL associated with the carbureted water gas process is typically lighter and less viscous. The NAPL observed at the site is consistent with NAPL associated with the carbureted water gas process. More viscous NAPL, typically associated with the coal carbonization process, was not observed during the investigation activities completed at the site.

1.4.2.2 Surface Soil Quality

Surface soil samples were collected from twelve sampling locations during the Remedial Investigation, including five locations outside the former MGP and EGP operational areas. Analytical results for the surface soil samples were compared to the 6 NYCRR Part 375-6 unrestricted use soil cleanup objectives (unrestricted SCOs). Samples collected outside the former MGP and EGP operational areas exhibited concentrations similar to those inside the operational areas, suggesting that there is no distinct contribution from the historical operations of the MGP or EGP and that the surface soil quality represents

ambient conditions for this area of Peekskill. Several specific sources of PAHs for surface soils include train operations along the railroad and urban activities (i.e., local traffic) on North Water Street, as well as exhaust from significant traffic volume on Route 9 (Briarcliff-Peekskill Parkway) which is at elevations higher than the entire site.

1.4.2.3 Subsurface Soil Quality

Total BTEX concentrations ranged from non-detect to 4,260 milligrams per kilogram (mg/kg). The higher BTEX concentrations were detected in samples collected below 9 feet bgs and above the upper silt/clay and dense sand units. Subsurface soil samples that exhibited elevated BTEX concentrations were generally collected from locations where MGP-residuals were observed. In addition to the BTEX compounds, two other VOCs, which included a gasoline additive and a component of refined fuels (i.e., methyl tert-butyl ether [MTBE] and isopropyl benzene, respectively), were also detected in the subsurface soil samples. The presence of these VOCs suggests an additional source(s) of BTEX and other VOCs at the site.

Total PAH concentrations ranged from non-detect to 42,500 mg/kg. Samples that contained elevated concentrations of PAHs typically also exhibited physical evidence of MGP-residues or petroleum, such as odor, staining, NAPL, and/or elevated photoionization detector (PID) readings. The higher PAH concentrations were detected in soil samples collected from approximately 5 and 11 feet bgs, above the upper silt/clay and dense sand units. Similar to BTEX, soil samples contained elevated concentrations of PAHs were generally collected from locations in the vicinity of the former MGP site where MGP-residuals were observed.

At locations outside the area identified to contain MGP residuals, soil samples did not contain total BTEX or total PAHs at concentrations greater than 10 and/or 500 mg/kg, respectively.

Subsurface soil samples also contained cyanide at concentrations ranging from 1.39 to 38.2 mg/kg. Only one subsurface soil sample, collected at the north of the site near the former EGP, contained cyanide at concentrations greater than the 6NYCRR Part 375 unrestricted use SCO (i.e. 27 mg/kg). Cyanide is not considered a COC for site soil based on the relatively low concentrations and the limited (one) occurrence above the unrestricted use SCO. Further, the one sampling location where the most elevated detected cyanide concentrations coincided with locations where elevated BTEX and PAHs were also encountered. No physical evidence of cyanide-containing residues, such as purifier waste (wood chips, spent lime, etc.) was observed during the remedial investigation.

1.4.2.4 Groundwater Quality

Analytical results for groundwater samples collected during the remedial investigation were compared to NYSDEC Division of Water Technical and Operational Guidance Series (1.1.1) Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations (TOGS 1.1.1 Standards and Guidance Values) (NYSDEC, 2004). Analytical results indicated the following:

- One or more BTEX compounds were detected at concentrations above NYSDEC groundwater criteria at four monitoring well locations in the vicinity of and downgradient from the 30,000 and 200,000 cf gas holders and the oil tank (i.e., at monitoring wells MW-5, MW-6, MW-9 and MW-12). Total detected BTEX concentrations ranged from 0.8 to 747 micrograms per liter (µg/l).

- Select PAH compounds (acenaphthene and naphthalene) were detected at concentrations that exceeded NYSDEC groundwater criteria in several of the groundwater samples. However, the monitoring well locations that these groundwater samples were collected coincided with those where elevated concentrations of BTEX were also detected. Total detected PAH concentrations ranged from 2.3 to 2,736 µg/l.

Additionally, chlorinated VOCs were detected in 17 groundwater samples and exceeded NYSDEC groundwater criteria at six monitoring well locations. However, chlorinated VOCs are not related to MGP or EGP operations.

1.4.2.5 Sediment Quality

Sediment characterization consisted of a subsurface investigation completed during the Remedial Investigation and a surface sediment and background sediment investigation conducted as part of a supplemental sediment sampling event, The supplemental sediment sampling was conducted to establish background concentrations of PAHs in surface sediments in Peekskill Bay; and determine if the surface sediments in Peekskill Bay have been affected by underlying MGP residuals that were encountered in the subsurface sediments.

As identified above in Section 1.4.2.1, coal tar NAPL and scattered globules are encountered in sediments of the Peekskill Bay at depth intervals ranging between 0.5 and 18 feet bss within the area identified as “Extent of Impacts”. MGP residual impacts in subsurface sediments are segregated within an approximately 1.3-acre area along the shoreline of Peekskill Bay of the Hudson River downgradient from the site.

In general, elevated BTEX and PAHs concentrations were detected in subsurface sediment samples in the area identified to contain MGP residuals. The highest concentrations corresponded to NAPL-impacted lenses. Total organic carbon (TOC) concentrations in subsurface sediment samples varied from 1,420 mg/kg to 148,000 mg/kg.

- BTEX compounds were detected in 33 of the 45 subsurface sediment samples collected. Total detected BTEX concentrations ranged from 0.007 to 5,314 mg/kg. BTEX compounds were detected at concentrations exceeding NYSDEC TOC adjusted screening levels in 12 subsurface sediment samples. In general, BTEX concentrations greater than NYSDEC TOC-adjusted screening levels were detected in subsurface sediment samples in the area identified to contain MGP residuals. Non-BTEX VOCs were detected in most of the 45 samples and included chlorinated and non-chlorinated solvents. However, these VOCs are not considered typical MGP or EGP constituents and may be due to operations not related to the former MGP and EGP.
- PAH compounds were detected in 40 of the 45 subsurface sediment samples collected. Total detected PAH concentrations consisting of the 17 Target Compound List PAHs (Total PAH17) ranged from 1.81 to 8,263 mg/kg. PAH compounds were detected at concentrations exceeding NYSDEC TOC adjusted screening levels in 30 subsurface sediment samples. Similar to BTEX, PAH concentrations above NYSDEC TOC adjusted screening levels were detected in subsurface sediment samples in the area identified to contain MGP residuals.

A statistical background analysis was performed using United States Environmental Protection Agency (USEPA) ProUCL (v.4.4.01) software (USEPA, 2010) to calculate the PAH background concentrations in

surface sediment. The background concentrations were defined as the 90th percentile of the data set and were calculated for Total PAH17 using both a data set with potential outliers removed and the full data set of background values. The resulting background concentrations were 10.5 and 29 mg/kg with the potential outliers removed and with potential outliers retained in the data set, respectively. Total PAH17 concentrations in surface sediments within the area of sediments containing MGP residuals were higher than the statistically estimated background concentrations. Total PAH17 concentrations detected in select samples collected outside the area of sediment containing MGP residuals were higher than the statistically estimated background concentrations. However, based on the proximity to the shoreline, outfalls, railroad, and other inactive hazardous waste sites, the increased PAH concentrations in surface samples collected outside the area of sediment containing MGP residuals (i.e., NAPLs, blebs/globules) are the result of input from anthropogenic activities, storm water discharges and surface water runoff and are not related to historical operations of the former MGP/EGP. Therefore, the sediment to be addressed is limited to those delineated by visual indications of MGP-related impacts.

1.5 Remedial Action Objectives

Based on the nature and extent of impacts identified at the site, the specific remedial action objectives (RAOs) were established in the Decision Document and are presented in Table 1.1 below.

Table 1.1 Remedial Action Objectives

OU-2
RAOs for Soil
RAOs for Public Health Protection 1. Prevent ingestion/direct contact with contaminated soil. 2. Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil. *RAOs for Environmental Protection* 1. Prevent migration of contaminants that would result in groundwater or surface water contamination. 2. Prevent impacts to biota from ingestion/direct contact with soil causing toxicity or impacts from bioaccumulation through the terrestrial food chain.
RAOs for Groundwater
RAOs for Public Health Protection 1. Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards. 2. Prevent contact with, or inhalation of volatiles, from contaminated groundwater. *RAOs for Environmental Protection* 1. Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable. 2. Prevent the discharge of contaminants to surface water. 3. Remove the source of ground or surface water contamination.
RAOs for Sediment
RAOs for Public Health Protection 1. Prevent direct contact with contaminated sediments. 2. Prevent surface water contamination which may result in fish advisories.

OU-2
RAOs for Environmental Protection 1. Prevent releases of contaminant(s) from sediments that would result in surface water levels in excess of (ambient water quality criteria). 2. Prevent impacts to biota from ingestion/direct contact with sediments causing toxicity or impacts from bioaccumulation through the marine or aquatic food chain. 3. Restore sediments to pre-release/background conditions to the extent feasible.

2 BASIS OF DESIGN

The selected remedy and associated basis for the remedial design is presented in the following subsections.

2.1 Selected Remedy

The main elements of the selected remedy as presented in the Decision Document are as follows:

- Install a NAPL barrier wall to prevent future migration of NAPL to Peekskill Bay.
- Install NAPL recovery wells to facilitate periodic NAPL monitoring/recovery.
- Dredge approximately 6,050 cubic yards of NAPL-impacted sediments to depths up to 5 feet below existing sediment surface in the intertidal and subtidal zones to the extent practicable.
- Transport dredged material to an approved, permitted off-site facility(ies) for processing, treatment and disposal.
- Backfill to pre-existing bathymetry with a general river backfill matching the approximate grainsize distribution of the existing sediment, as well as an amended engineered cap in areas where sediment containing minor visual indications of NAPL may remain at depths deeper than 5 feet bss.

Following construction of these remedial components, institutional controls will be established for the controlled property in accordance with DER-33 (NYSDEC 2010b) that:

- Require periodic certification of the institutional and engineering controls in accordance with 6 NYCRR Part 375-1.8 (h)(3).
- Allows use and development of the controlled property for commercial and industrial use as defined by Part 375-1.8(g). In addition, land use is subject to local zoning laws.
- Restricts the use of groundwater as a source of potable or process water without necessary treatment as determined by the NYSDOH or Westchester County DOH.
- Require compliance with the NYSDEC-approved Site Management Plan (to be prepared following completion of the remedial action; refer to Section 5.2).

2.2 Basis for Primary Remedial Action Components

The primary remedial action components consist of the following:

- Install a NAPL barrier wall to prevent future migration of NAPL to Peekskill Bay.
- Install a network of NAPL collection sumps to facilitate NAPL monitoring and recovery (to the extent possible).
- Dredge NAPL-impacted sediment within Peekskill Bay to a maximum depth of 5 feet bss.
- Backfill, including an amended engineered cap in areas where sediment containing minor visual indications of NAPL may remain at depths deeper than 5 feet bss.

In support of obtaining information to prepare the remedial design, Arcadis conducted a pre-design investigation (PDI) to obtain additional information to support the remedial design for the selected remedy. The objectives of the PDI were to:

- Conduct a multi-Sensor Marine Geophysical Survey (Ocean Surveys, Inc. [OSI], 2014). Side Scan sonar and a magnetometer to identify the potential presence of submerged debris within the work area.
- Obtain geotechnical information along the approximate alignment of the NAPL barrier wall (PDB-100 through PDB-104 and PDB-107).
- Confirm the limits of visually impacted sediment and obtain geotechnical information to support the sediment dredging and backfill components of the remedial action (soil borings PDI-SED-100 through PDI-SED-110).
- Conduct additional near-shore soil borings within Peekskill Bay along the anticipated path of the NAPL Barrier Wall to assess the depth to the confining silt and clay unit (soil borings PDI-SED-111 through PDI-SED-121 and PDI-SED-125 through PDI-SED-132).

2.2.1 Sediment Dredging Limits (OU-2)

Visually impacted sediments were identified and delineated by previous site investigations. Sediments within five feet or less of the sediment surface containing visual indications of site-related NAPL (e.g., blebs, blobs, stringers, seams, etc.) were identified for remediation at twelve boring locations: SD-1, SD-3, SD-8, SD-9, SD-10, SD-11, SD-13, SD-14, SD-16, SD-20, and SD-21 as shown on Design Drawing C-102. Areas of impacted sediment around these sampling locations were formed using the Theissen polygon method. The limits of the area identified as the “Approximate Extent of Proposed Sediment Removal” in the Alternatives Analysis Report (AAR; Arcadis 2013), were further delineated by visually clean sediment samples collected from PDI sediment borings (advanced around the perimeter of the proposed removal area). Minor visual impacts consisting of sheen were noted in sediment samples to depths up to 1.5 feet below sediment surface at two sediment sampling locations (SD-22 and SD-34) located immediately south and north (respectively) of the area of impacted sediment indicated in the AAR. These minor impacts are believed to be derived from natural lateral river motion from the primary area of NAPL-containing sediments and not as a direct discharge to the river from the upland area adjacent to these areas. These areas have also been identified for remediation.

The dredge prism was developed as described below based on the Theissen polygons shown in the AAR and expanded based on the PDI.

- Determine target dredge elevations based on target removal depth in the Theissen polygons identified in the AAR/PDI and bathymetry data collected as part of the PDI.
- For slope stability, use a 2:1 horizontal to vertical (H:V) slope:
    - At transitions between dredge areas with removal depths greater than 2 feet.
    - At transitions greater than 2 feet from the dredge area to the adjoining intertidal or subtidal zones.

The resulting dredge prism is shown in Design Drawing C-102 (Appendix A).

The limits of sediment dredging were confirmed (i.e., the absence of NAPL containing sediments) by PDI sediment borings (borings PDI-SED-100, PDI-SED-102, and PDI-SED-104 through PDI-SED-106) completed around the perimeter of the anticipated limits of NAPL containing sediment as delineated during the RI.

2.2.2 Backfill Materials

Several backfill materials will be used during the proposed remedial activities. Various backfill materials consist of riprap; hydraulic control trench backfill; NAPL control trench backfill; river backfill; and sand/organoclay backfill. Section 31 05 00 – Earthwork Materials and Section 35 20 23 - Mechanical Dredging, Backfill and Material Handling and Disposal (Appendix B) present the required grainsize gradation for each specified fill material.

The basis for the gradation specifications in general is to replace excavated materials with materials that are generally consistent in grainsize. The specified River Backfill material is consistent with a silty sand, is supportive of aquatic biota and with other restoration fill materials used at remediation sites on the Hudson River. Samples and/or visual assessment of existing materials were used to assess the existing material grainsize and specify appropriate fill materials. Exceptions to this consist of the fill material to be used in the hydraulic control trench, NAPL control trench and the sand/organoclay backfill. The bases for the material and gradation design of these materials are presented below.

Hydraulic Control Trench Backfill (OU-2) – The objective of this material is to create a unit immediately behind the low-permeability NAPL barrier wall that will be more conductive than the upgradient soil to "dampen" groundwater mounding that may otherwise occur without this material and allow groundwater to flow more efficiently over the top of the NAPL Barrier Wall. The material gradation was designed similar to a sand pack to reduce the amount of fines that will enter the fill material pore spaces while providing the relatively higher conductivity.

NAPL Control Trench Backfill (OU-2) – The objective of this material is to create a unit immediately behind the in-river portion of the NAPL Barrier Wall that will more conductive that the upgradient sediment to minimize the potential for NAPL that may collect behind the wall from being able to flow upwards over the top of the NAPL Barrier Wall. The material was designed similar to a sand pack to reduce the amount of fines that could enter the pore spaces of the fill material while providing the relatively higher conductivity.

Sand/Organoclay Backfill (OU-2, Engineered Cap) – An engineered cap will be placed over sediment dredging areas where minor visual indications of NAPL will remain deeper than 5 feet below the sediment surface. The fill material will consist of a mixture of sand and organoclay. Organoclay is a bentonite or hectorite clay that has been modified to be hydrophobic and organophilic. These properties allow the organoclay to adsorb NAPL and dissolved phase hydrocarbons while remaining permeable to water. Organoclays have a high sorption capacity for NAPL and have been employed in a variety of applications to address sheening along waterways (Reible 2007). The organoclay to be used for the cap is PM-200 or equivalent. Testing by the organoclay manufacturer (CETCO) using PM-200 organoclay indicate that this media is highly effective in adsorbing organic contaminant, specifically NAPLs. Where appropriate, an approximately 1-foot layer of this material this material will be placed at the bottom of the dredge area and overlain with river fill material.

As presented in Section 31 05 00 – Materials for Earthwork (Appendix B), the Contractor shall complete a "Request to Import/Reuse Fill or Soil" form for each fill material brought to the site (http://www.dec.ny.gov/docs/remediation_hudson_pdf/requesttoreusesoil.pdf).

The Contractor will be required to sample imported fill material in accordance with protocol presented in Table 5.4(e)10 in DER-10, Technical Guidance for Site Investigation and Remediation as well as analytical testing for Polyfluoroalkyl Substances (PFAS) in accordance with NYSDEC's Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), October 2020.

2.2.3 NAPL Barrier Wall (OU-2)

The NAPL barrier wall alignment was selected to minimize construction above the mean high high water (MHHW) line while managing the accessibility challenges that are present at the site. The barrier wall alignment generally will be placed at the MHHW line (upland portion) until it would encroach on the MNR ROW, at which point it will extend into the bay at an appropriate offset from the railroad (in-water portion). The wall driven will be driven a minimum of 5 feet into the confining silt and clay unit to prevent future migration of NAPL into Peekskill Bay. Steel sheet pile was chosen as the selected wall technology due to its ease of installation, resistance to degradation in brackish conditions and its structural integrity when compared to other hydraulic barrier wall technologies. The portions of the barrier wall exposed to tidal influx of water at and above the mean low low water (MLLW) line will protected from corrosion with an epoxy coating compatible with brackish conditions and Site groundwater chemistry. The specified epoxy coating consists of a 100% solids epoxy with fiber reinforcement and is appropriate for this application. The NAPL Barrier Wall includes two wing walls, one at each end to further reduce the potential for NAPL to migrate around the wall.

For the in-water portion of the barrier wall, a trench will be excavated behind the barrier wall with the bottom of the trench generally sloping the top of the confining silt and clay unit downward from north to south toward a NAPL collection sump that will be accessible from land. The trench will be backfilled with a coarser material than the surrounding sediment to inhibit NAPL up gradient of the barrier wall from migrating over the wall or around the northern edge of the wall. The top of the sheet piling in this portion of the wall will be driven below the existing top of sediment surface.

The upland portion of the wall is proposed to be placed at the approximate MHHW line with the top of the sheeting to be driven approximately 18-inches below final restored grade. A trench (i.e., hydraulic control trench) will be excavated behind this portion of the wall and backfilled with a coarser material than the surrounding soil to dampen potential groundwater mounding and allow groundwater to flow over the top of the wall. This trench will also serve as a corridor for installation of infrastructure for a potential future automated NAPL recovery system.

2.2.4 NAPL Collection Sumps (OU-2)

The proposed locations of NAPL collection sumps are based on geologic characterization of soil samples collected from borings completed during RI and PDI activities. Multiple soil borings were completed upland and within the river to identify and map the top of the confining silt and clay unit. NAPL collection sump locations have been selected to coincide with natural low spots in the confining silt and clay surface to enhance NAPL collection.

2.2.5 Assumptions

The following assumptions were made to facilitate the preparation of this RD Report:

- A portion of the NAPL barrier wall will be allowed to be constructed below the MHHW line.
- The City of Peekskill, United States Army Corps of Engineers (USACE), and/or NYSDEC Fisheries, Wildlife and Marine Resources (FWMR) will allow installation of the NAPL barrier wall within the riverbank adjacent to Peekskill Landing Park.
- Access to the OU-2 work area will be from the Hudson River.
- Access to the work area through Peekskill Landing Park will be prohibited.

3 PRE-REMEDIATION ACTIVITIES

The following pre-remediation activities will be completed by Con Edison and/or its representatives, the Engineer, and/or the selected Contractor prior to the initiation of remedial construction.

- Coordinating with the City of Peekskill, MNR, Westchester County and other property owners.
- Assisting NYSDEC preparing a citizen participation notice and fact sheet
- Obtaining regulatory permits, access agreements and other approvals
- Preparing pre-mobilization submittals
- Conducting a pre-remediation conference
- Conducting a pre-remediation structural survey

The overall purpose of the pre-remediation activities is to coordinate with the local community and officials to facilitate the initiation of the remediation construction activities. Additional information regarding these pre-remediation activities is provided in the following subsections.

3.1 Access Agreements and Permitting

Based on the remedial activities to be conducted at the site and information currently available, the following permit(s), authorization(s) and/or notification(s) have been identified, at a minimum, as being potentially applicable with respect to remedial activity approval:

- Access Agreements – Access agreements will be required to facilitate implementation of the following remedial construction activities:
    - Installing NAPL collection sumps on MNA's ROW (if applicable).
    - Installing the NAPL barrier wall and NAPL sumps along the bank of Peekskill Bay and on the City of Peekskill's Peekskill Landing property.
- Nationwide Permit #38 (NWP 38) – A permit will be required for conducting the sediment removal activities in Peekskill Bay.
- Section 401 Water Quality Certification – A Water Quality Certification must be applied for and granted by the NYSDEC, indicating that the proposed remedial activities will not violate water quality standards.

The NWP 38 and Water Quality Certification will be submitted to USACE and NYSDEC under a Joint Application for Permit.

Con Edison will be responsible for obtaining access agreements and the above-listed permits and certifications. Prior to implementing the remedial activities, Con Edison will satisfy notification requirements and obtain applicable review required by the NYSDEC.

3.2 Contractor Pre-Mobilization Submittals

Following contract award, the selected Contractor will be required to prepare pre-mobilization submittals for review by Con Edison, the Engineer, and/or NYSDEC. The Contractor will not be allowed to mobilize to the site prior to review and approval of all required pre-mobilization submittals. These submittals will include, but not necessarily be limited to, the following:

- Project Operations Plan – The Project Operations Plan is required to present the Contractor's detailed approach for implementing the pertinent work activities (incorporating, as necessary, specifications, site maps, details, flow diagrams, charts, site geologic/geotechnical information, and schedules). The Contractor shall prepare supporting plans to support the Project Operations Plan as detailed in Section 01 11 00 – Summary of Work (Appendix B).
- Contractor Health and Safety Plan (CHASP) – The Contractor will be required to prepare and submit a site-specific CHASP (for use by the on-site personnel during the remedial activities) to provide a mechanism for establishing safe working conditions at the site. The CHASP will be prepared in accordance with all applicable rules and regulations, including 29 Code of Federal Regulations (CFR) 1910 and 29 CFR 1926, and shall be prepared by a Certified Industrial Hygienist. The Contractor is required to take all necessary precautions for the health and safety of all on-site personnel in compliance with all applicable provisions of federal, state, and local health/safety laws and the provisions associated with the CHASP. The Contractor will assume sole responsibility for the accuracy and content of its CHASP. CHASP specifications are presented in Section 01 35 29 – Contractor's Health and Safety Plan (Appendix B).
- Preliminary Progress Schedule – The Contractor shall prepare a preliminary cost-loaded schedule that identifies major work items and work sequences and the requirements presented in Section 01 30 00 – Administrative Requirements (Appendix B).

4 REMEDIATION ACTIVITIES

This section presents a task-by-task summary of the planned remediation activities. The Contractor shall conduct the remediation activities in accordance with the text provided in the following subsections; the OU-2 Design Drawings included as Appendix A; the OU-2 Technical Specifications included as Appendix B, the CAMP included as Appendix C, the CERP included as Appendix D, and the Contingency Plan included as Appendix E. The CAMP presents the community air monitoring activities the Engineer will conduct to monitor for potential work area perimeter COC airborne releases during remedial construction. The CERP presents a summary of the site monitoring and work practices that will be completed to address potential short-term impacts to the surrounding community and/or environmental resources during remedial construction.

The Contractor shall complete each remediation task in accordance with the Contractor's CHASP. The Contractor will be responsible for conducting worker health and safety and workspace monitoring.

A description of each OU-2 remediation task is presented in the following subsections.

4.1 OU-2 Remediation Tasks

4.1.1 OU-2 Site Access

Access to the OU-2 work area is by water only from the Hudson River. Access to the land side activities at the OU-2 work site (i.e., NAPL Barrier, Hydraulic Control Trench installation) will be by water only and limited to the immediate shoreline area of OU-2 not including Peekskill Landing Park or the MTA ROW. Access to the work area will require shallow draft vessels. The Contractor will be responsible for determining and obtaining access to the location(s) for mobilizing equipment and personnel to the site. The Contractor shall assume that access through Peekskill Landing Park is prohibited.

4.1.2 OU-2 Remediation Task 1 – Mobilization

The Contractor will initiate site mobilization after notification from Con Edison to proceed. In general, mobilization activities include bringing personnel, equipment, and materials to the site to support the remedial construction activities. Mobilization activities to be conducted by the Contractor include, but are not limited to, the following:

- Mobilizing necessary labor, equipment, materials, tools, and supervision to commence work on the project.
- Coordinating with Dig Safely New York, as well as a private utility locator, prior to construction activities to mark all on-site underground utilities.
- Contracting with a private utility locating subcontractor to verify and mark out the locations and approximate depths of utilities that are located within the work area. Conducting pre-construction structural surveys to establish baseline conditions of existing structures.
- Mobilizing and establishing office trailers: to be utilized by the Contractor, the Engineer, Con Edison, and the NYSDEC during implementation of the remedial activities. The trailers (and supporting

services) shall conform to the requirements presented in Section 01 50 00 – Temporary Facilities and Controls (Appendix B).

- Coordinating with Con Edison Customer Service to obtain electrical service. The Contractor shall be responsible for coordinating for electrical service and all necessary utilities for use during the remedial construction.
- Providing and maintaining portable sanitary services for use by on-site personnel engaged in the remedial activities. Portable sanitary shall conform to the requirements presented in Specification 01 50 00 – Temporary Facilities and Controls (Appendix B).
- Obtaining any additional permits not identified in Section 3.1. The Contractor shall be responsible for obtaining local permits (e.g., city building and/or construction permits) necessary to facilitate remedial construction.

4.1.3 OU-2 Remediation Task 2 – Site Preparation

Site preparation will include identifying the location of and protecting utilities, equipment, and structures; installing turbidity and sheen control measures; installing geotechnical monitoring equipment; installing site security provisions; installing temporary project support facilities; and performing survey control activities as follows:

- Verifying site conditions and identifying, marking, and verifying the location(s) of all aboveground and underground utilities, equipment, and structures, as necessary, to implement the remedial activities in accordance with Section 01 70 00 – Execution and Closeout Requirements (Appendix B). Current site conditions (i.e., a site plan and approximate locations of known existing utilities) are shown on Drawings G-101 and G-102 (Appendix A).
- Establishing sediment removal area survey control and work limits. Survey control requirements are presented in Section 01 70 00 – Execution and Closeout Requirements (Appendix B).
- Protecting existing site features in accordance with Section 01 70 00 – Execution and Closeout Requirements (Appendix B).
- Installing vibration and settlement monitoring points at the locations shown on Drawing C-101 (Appendix A) to monitor potential movement and vibrations during excavation and dredging activities in accordance with Section 31 09 13 – Geotechnical Instrumentation and Monitoring (Appendix B).
- Installing temporary erosion and sediment controls and turbidity and sheen control measures in accordance with Drawings G-103, G-501, and G-502 (Appendix A) and Section 01 50 00 – Temporary Facilities and Controls (Appendix B). A description of the required turbidity and sheen controls, including procedures for responding to turbidity and sheen exceedances are described in more detail in Section 4.1.4 and in the Technical Specifications as referenced above.
- Clearing trees, brush, etc. as necessary to conduct the work in accordance with Section 01 70 00 Execution and Closeout Requirements (Appendix B).
- Installing work zone air monitoring equipment (to be relocated, as appropriate, based on wind direction) as required by the Contractor's CHASP.

- Installing access roads and parking areas, as needed; in accordance with Section 01 50 00 – Temporary Facilities and Controls (Appendix B).
- Site control and access to the OU-2 work area as indicated on Drawings G-103 and G-503 (Appendix A). Project sign requirements are presented in Section 01 50 00 – Temporary Facilities and Controls (Appendix B). The Contractor shall provide suitable and secure storage for materials and equipment. Temporary site controls will be removed following completion of the construction activities.
- Access to the OU-2 work area is limited due to its location between the MTA ROW and Hudson River. Portions of OU-2 are adjacent to a public park (Peekskill Landing Park). The Contractor will not be permitted to access the OU-2 work area through Peekskill Landing Park. Site control and access to the OU-2 work areas during construction will be restricted through the installation of temporary signs, fencing, or other approved methods. Requirements for the project sign are presented in Section 01 50 00 – Temporary Facilities and Controls (Appendix B).
- Constructing equipment and personnel decontamination areas (as appropriate) in accordance with Section 02 51 00 – Decontamination (Appendix B).
- Performing general site grading for staging of office trailers (as necessary).

4.1.4 OU-2 Remediation Task 3 – Environmental Controls and Monitoring

The Engineer will be responsible for conducting community air monitoring for vapor and dust as specified in the CAMP (Appendix C)

The Contractor will be responsible for conducting workspace air monitoring in accordance with the CHASP. In the event of a community air monitoring or workspace air exceedance, best management practices will be implemented to prevent or otherwise control fugitive dust, volatile emissions, and nuisance odors from the project work areas associated with the remediation in accordance with Section 01 50 00 – Temporary Facilities and Controls (Appendix B).

The Contractor will also be responsible for installing engineering controls (i.e., bottom-sealed filter barrier) to mitigate potential water quality impacts (i.e., turbidity and sheen) due to construction activities. Engineering controls are detailed on Drawing G-502 (Appendix A) and in Section 01 50 00 –Temporary Facilities and Controls (Appendix B). The Engineer will conduct water column monitoring outside the turbidity curtains to assess turbidity levels in accordance with Section 01 50 00 –Temporary Facilities and Controls (Appendix B).

The Engineer will conduct turbidity monitoring as presented in Section 01 50 00 – Temporary Facilities and Controls (Appendix B). In general, continuous turbidity monitoring will be conducted using three remote monitors equipped with telemetry placed upstream (one monitor) and downstream (two monitors) of the dredge areas limits. Turbidity action levels will be based on relative difference of 50 nephelometric turbidity units [NTUs] or greater or any visual turbidity outside of the bottom-sealed filter barrier. The Engineer will notify the Contractor of turbidity exceedances and implement appropriate response actions as presented in the Technical Specification.

4.1.5 OU-2 Remediation Task 4 – Debris Removal

The types and extent of debris observed during the Multi-Sensor Marine Geophysical Survey (OSI, 2014) conducted as part of the PDI are included in OSI's December 2, 2014 Operations Report (OSI Report No. 14ES055) included as Attachment 2. Side Scan sonar and a magnetometer were used to identify the potential presence of submerged debris. Features identified during the PDI debris survey include metal, and wood debris, wooden piles, and sunken barges (wood and metal).

The Contractor shall prepare a Debris Removal and Management Plan (to be included as a supporting plan to the Contractors Project Operations Plan) as described in Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal (Appendix B). The Contractor shall remove all debris including but not limited to sunken barges, wooden piles, concrete, and metal within the dredge area as needed to complete dredging activities (including but not limited to installation of environmental controls, access to and from the dredge area, dredging to the specified depths, and backfilling). Piles located outside the dredge areas that require removal for access or installation of environmental controls shall be removed by vibratory extraction or by cutting to a depth that will facilitate completion of the work. Piles located within dredge areas shall be cut at the post-removal dredge surface. Additional details regarding debris removal are presented in Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal (Appendix B).

4.1.6 OU-2 Remediation Task 5 – NAPL Barrier Wall and NAPL Collection System

The Contractor shall install a NAPL barrier wall and NAPL collection system as part of the selected site remedy. In general, the NAPL barrier wall consists of a permanent sheet pile wall installed partially along the MHHW elevation contour and partially within Peekskill Bay. The NAPL collection system will consist of NAPL collection sumps installed in existing depressions or low areas in the top of the confining silt and clay unit. NAPL collection will be supported by a NAPL control trench installed behind the northern portion of the NAPL barrier wall. Additionally, the Contractor shall install conduit for a potential automated NAPL collection system that may be installed in the future. The NAPL barrier wall and collection system plan and profile are shown on Drawings C-101 and C-201, respectively. Details regarding the NAPL barrier wall and collection system installation are shown on Drawings C-501 through C-503 (Appendix A) and presented in Section 35 31 16 – NAPL Barrier Wall and Collection System (Appendix B).

4.1.7 OU-2 Remediation Task 6 – Sediment Removal

Dredging activities will be conducted in accordance with the following specifications (included in Appendix B):

- Section 01 70 00 – Execution and Closeout Requirements
- Section 35 20 23 - Mechanical Dredging, Backfill and Material Handling and Disposal

The basis for the extent of sediment removal is described in Section 2.2.1and the horizontal and vertical extents of the dredge area are shown on Drawing C-102 (Appendix A).

Following site preparation and installation of the environmental controls and geotechnical monitoring instrumentation, dredging of impacted sediment will be performed in the wet from the approximate 1.3-acre dredge area to a minimum depth of 1.5 feet bss to a maximum depth of 5 feet bss. The estimated

neat-line in-situ volume of sediment for the dredge prism defined in Section 2.2.1 is approximately 6,800 cubic yards as calculated using AutoCAD Software. Including a 0.5-foot maximum over-dredge allowance, 2 horizontal:1 vertical sloughing on all exterior and interior changes in dredge depth, and 10 percent contingency, as defined in Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal (Appendix B), the resulting estimated volume of material to be dredged and managed is approximately 9,000 cubic yards. Debris is not included in this volume estimate.

4.1.8 OU-2 Remediation Task 7 – OU-2 Geotechnical Monitoring

The Contractor will be required to conduct geotechnical monitoring during OU-2 activities in accordance with Sections 02 21 19 – Structural Surveys and 31 09 13 – Geotechnical Instrumentation Monitoring (Appendix B). Geotechnical and structural monitoring instrumentation will include vibration and settlement monitoring. The proposed location for geotechnical monitoring instrumentation is shown on Drawing C-101 (Appendix A).

4.1.9 OU-2 Remediation Task 8 – OU-2 Dredged Material and Water Handling and Disposal

The Contractor will manage and dispose dredged materials (i.e., sediment and debris) in accordance with Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal (Appendix B). On-water barge decanting will be allowed in accordance with Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal (Appendix B). The Contractor shall transport dredged material off-site via barge to a Con Edison-approved processing and disposal facility(ies) for sediment stabilization, treatment via LTTD and/or non-hazardous waste disposal. The Contractor is responsible for all waste characterization sampling, analysis and waste profile preparation with the proposed treatment and disposal facility. Prior to off-site disposal, the Engineer will confirm that the disposal facility(ies) has received the waste profile and has received written confirmation that they are properly permitted to accept the waste. This documentation will be included in the Final Engineering Report.

4.1.10 OU-2 Remediation Task 9 – Backfilling

Following verification that sediment dredging is complete as described in Section 4.2.1, the dredged areas will be backfilled. OU-2 sediment and riverbank restoration and triangle parcel restoration plans are included as Drawings C-103 and C-104, respectively. Backfilling details are presented on Design Drawing C-504 and in Sections 31 00 00 – Earthwork and 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal (Appendix B).

As indicated on the Design Drawings, the OU-2 backfill will consist of a combination of general river backfill and a sand and organoclay engineered cap in areas where sediment containing minor visual indications of NAPL may remain at depths deeper than 5 feet below existing sediment surface following remedial activities.

The grainsize distribution of selected backfill materials have been designed to mimic the existing sediment characteristics and replace the benthic habitat to facilitate natural recolonization by native biota. The engineered cap (where placed) consists of a combination of a sorptive layer (sand and organoclay)

with an overlying river backfill. Dredged areas will be backfilled to restore the riverbed to its approximate pre-dredge bed elevation as shown on Drawing C-103 (Appendix A).

NYSDEC, Con Edison, and the Engineer will review the final and any interim dredge limit bathymetric surveys, including approval or requirements for additional removal within 4 days of receipt. The Contractor will begin backfilling within one week of NYSDEC, Con Edison, and Engineer approval of the interim- or post-construction bathymetric survey. Once backfilling begins, the Contractor must complete backfilling to the approved dredged limits.

Based on the information obtained during the remedial investigation activities and as described in the AAR (Arcadis 2013), it's anticipated that the habitat (intertidal mudflat and subtidal zone) within the areal extent of the cover system will be further restored by naturally occurring sedimentation processes.

4.2 Construction Verification

The Engineer and Contractor will conduct construction quality assurance and construction verification activities presented in the Technical Specifications to confirm that the remedial objectives have been met. Additional construction verification activities for the primary remedial components are presented in the following subsections.

4.2.1 OU-2 Sediment Dredging Verification

A post-dredging survey will be performed in accordance with Section 01 70 00 – Execution and Closeout Requirements (Appendix B) to document that target elevations have been met. Backfilling will not be allowed until the required survey has been reviewed and accepted by Con Edison and the Engineer. If the target elevations have not been met, the Contractor will conduct additional dredging to the extent practicable and additional survey performed. If additional dredging is not practicable based on conditions encountered in the field, (e.g., due to structure stability concerns or obstructions), a meeting will be held with Con Edison, the Engineer, and NYSDEC to discuss alternate options and/or obtain NYSDEC approval to backfill the dredge area.

4.2.2 OU-2 Backfill Verification

Following completion of backfilling activities, the Contractor shall conduct a post-construction survey in accordance with Section 01 70 00 – Execution and Closeout Requirements (Appendix B) to verify that the sediment surface has generally been restored to pre-construction lines and grades and in accordance with the Design Drawings. In accordance with Section 01 70 00 (Appendix B), the Contractor is allowed a 0.5-foot tolerance (i.e., from -0.5 to 0 feet). The Contractor will be required to place additional backfill if the target elevations have not been met, additional backfill will be placed and additional survey performed. Additionally, the Contractor will be required to remove material placed at elevations greater than pre-construction elevations at no additional expense to Con Edison. If additional backfill is not practicable based on conditions encountered in the field, (e.g., proximity to structures), a meeting will be held with Con Edison, the Engineer, and NYSDEC to discuss alternate options and/or obtain NYSDEC approval that the remedial objective for backfill has been met.

4.2.3 OU-2 Barrier Wall Verification

Barrier wall verification will be based upon the final survey of the wall alignment and record keeping of the following wall specifics as required in Section 35 31 16 – NAPL Barrier Wall and Collection System (Appendix B).

4.2.4 OU-2 NAPL Collection System Verification

Post-construction surveys will be performed by the Contractor's surveyor to document the locations and elevations of the NAPL collection system components. The Engineer will document, through visual observation, that survey activities are performed in accordance with and survey documentation conforms to the requirements of Section 01 70 00 – Execution and Closeout Requirements (Appendix B). The Engineer will also obtain photographic documentation of post-construction conditions prior to demobilization.

4.3 Project Close-Out and Demobilization

Prior to demobilization, the following project close-out activities will be performed:

- Remove bottom sealed aquatic filter barrier (when appropriate)
- Remove temporary site security measures and signage
- Re-install any removed structures (e.g., fencing)
- Perform the post-construction survey.

The post-construction survey will serve as the baseline sediment elevation for subsequent post-remediation monitoring events performed under the SMP to be developed as described in Section 5.2.

5 POST-REMEDIATION REPORTING

A Final Engineering Report (FER) and SMP will be submitted to the NYSDEC following completion of the remedial construction activities described in the RD Report. The documents will be prepared, certified, and sealed by a Professional Engineer licensed in New York. The content of each of these documents is described below.

5.1 Final Engineering Report

The FER will be prepared, in accordance with DER-10, to document the remedial actions performed at the site and submitted to the NYSDEC. It is anticipated that the FER will include, at a minimum, the following information:

- Description of the remedial activities, including variations (if any) from the NYSDEC-approved RD Report
- Engineer-reviewed Contractor submittals
- Record Drawings
- Documentation associated with the off-site treatment/disposal of waste materials generated during implementation of the remedial activities
- Quality assurance/quality control documentation
- Summaries of monitoring results obtained during construction (e.g., water quality, air quality)
- Representative photographs taken during implementation of the remedial activities
- Copies of regulatory permits and other regulatory agency correspondence
- Progress meeting minutes
- Professional Engineer's certification statement

5.2 Site Management Plan

5.2.1 Documentation

An SMP will be prepared by the Engineer to describe the post-remediation activities to be completed at the site. It is anticipated that the SMP will include the following information:

- Relevant background information related to the SMP, including a general description of the site and identification of areas covered by the SMP.
- Institutional controls and engineering controls, as appropriate, implemented to address residual impacted materials that remain following completion of the remedial alternative.
- Tabulated laboratory analytical results for investigation, verification, and backfill samples (results applicable to soils/sediments remaining onsite) with comparisons to applicable criteria and procedures for handling and disposal of these materials, if encountered, during any future excavation.

- Discussion of site inspection, maintenance, and notice requirements.
- Discussion of post-construction monitoring. Including detailed methods for NAPL barrier wall monitoring both above and below the MHHW level to ensure that the top of the wall remains at or below grade.
- Contingency plan that will outline the steps to be implemented if any element of the remedial design fails to achieve its objectives, or otherwise fails to protect human health or the environment.
- Schedule for implementation of the SMP.
- Notification and reporting requirements.

5.2.2 Proposed Institutional Controls

As discussed in the AAR (Arcadis 2013), institutional controls will be implemented in accordance with DER-33 (NYSDEC 2010b) to protect the long-term integrity of the remedy. Institutional controls will be in the form of governmental enforcement, permit controls, and/or informational devices, as appropriate. Institutional controls will include placement of signs along the banks to discourage future disturbance of the natural cover in the tidal and subtidal zones (e.g., no dredging). The signage language and number and location of signs will be presented in the SMP.

5.2.3 Proposed Monitoring Plan

As required by the Decision Document, the SMP will include a Monitoring Plan to “assess the performance and effectiveness of the remedy” and will include at minimum the following:

- Monitoring of groundwater, pore water in shallow sediment (0" - 6") and sediment to assess the performance and effectiveness of the remedy;
- Restoration monitoring of the Hudson River riverbed and bank areas. Restored areas will be inspected for erosion and settlement

6 PRELIMINARY REMEDIAL ACTION SCHEDULE

A preliminary schedule for the remedial design, project permitting, contractor procurement, and remediation activities is presented Attachment 3. Barring any delays caused by weather, permitting, or access, it is anticipated that the remedial action will be initiated in Q3 2021. Further details regarding the schedule for the remedial construction and sequencing of the work will be presented in a final remedial schedule to be submitted to the NYSDEC once the permits for the project have been received from the United States Army Corp of Engineers and NYSDEC, and the Contractor has been selected by Con Edison. The work will be sequenced based on the selected Contractor's approach, and in consideration of weather/ climatic conditions and any permit requirements (e.g., construction window) or other regulatory conditions.

7 REFERENCES

Arcadis. 2012. *Supplemental Sediment Investigation Report*. Former Pemart Avenue Works Manufactured Gas Plant Site. April.

Arcadis. 2013. *Alternatives Analysis Report*. Former Pemart Avenue Works Manufactured Gas Plant Site. April.

ENSR/AECOM. 2007. *Remedial Investigation Report*. Former Pemart Avenue Works Manufactured Gas Plant (MGP) and Electric Generating Plant (EGP), February.

ENSR/AECOM. 2008. *Remedial Investigation Addendum*. Former Pemart Avenue Works Manufactured Gas Plant (MGP) and Electric Generating Plant (EGP), February.

NYSDEC. 2010a. Division of Environmental Remediation-10 Technical Guidance for Site Investigation and Remediation. May.

NYSDEC. 2010b. Division of Environmental Remediation-33. Institutional Controls: A Guide to Drafting and Recording Institutional Controls. December.

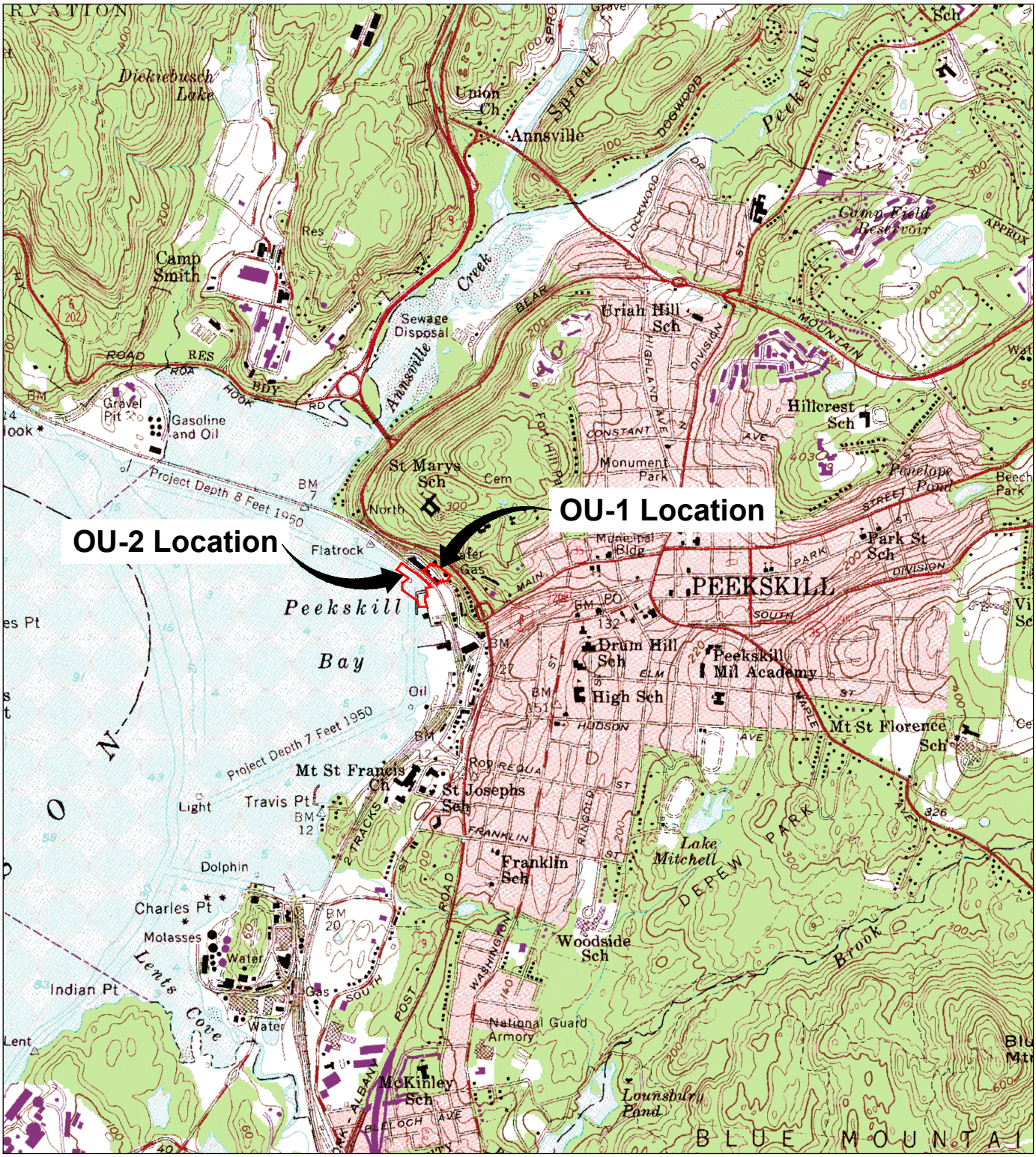
NYSDEC. 2014. *Decision Document: CE – Pemart Ave-Peekskill MGP Voluntary Cleanup Program*, Peekskill, Westchester County, Site Number V00566. August.

NYSDEC. 2018. Multi-Site VCP Transition Order on Consent and Administrative Settlement; Index No. CO 0-20180516-519. July.

NYSDEC 2020. NYSDEC's Part 375 Remedial Programs – Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS), October 2020.

OSI. 2014. *Operations Report* (OSI Report No. 14ES055) Multi-Sensor Marine Geophysical Survey, Peekskill Bay, New York. December.

FIGURES



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., PEEKSKILL, NEW YORK, 1957, PHOTOREVISED 1981.

0 2000' 4000'

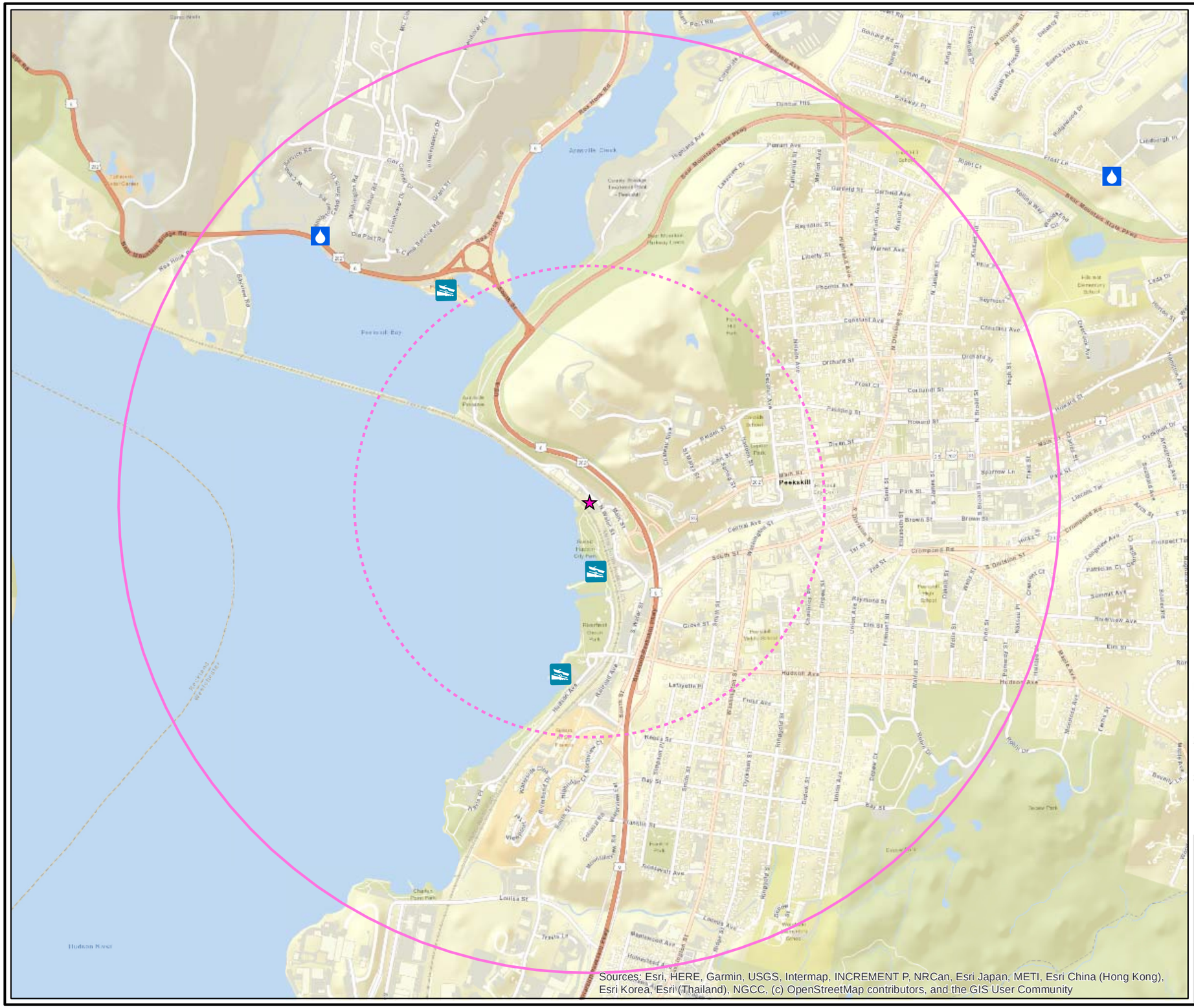
Approximate Scale: 1 in. = 2000 ft.

CON EDISON
FORMER PEMART AVENUE MGP SITE
PEEKSKILL, NEW YORK

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1-1



LEGEND:

- SITE LOCATION
- HALF MILE RADIUS
- ONE MILE RADIUS
- WATER WITHDRAWALS
- NYS PUBLIC BOAT LAUNCH

0 1,100 2,200 Feet

GRAPHIC SCALE

NOTES:

1. 2019 NYS WATER WITHDRAWAL DATA LOCATIONS WERE OBTAINED FROM THE NYS DEC AT: HTTP://GIS.NY.GOV/.
2. GROUNDWATER WITHDRAWAL SOURCE FOR INSTITUTIONAL USE AT CAMP SMITH, NY ARMY NATIONAL GUARD FACILITY.
3. NYS PUBLIC BOAT LAUNCH LOCATIONS INCLUDE A COMBINATION OF PRIVATE AND NYSDEC OWNED PUBLIC LAUNCH LOCATIONS. NYS DEC LAUNCH LOCATION WAS OBTAINED AT: HTTP://GIS.NY.GOV/.

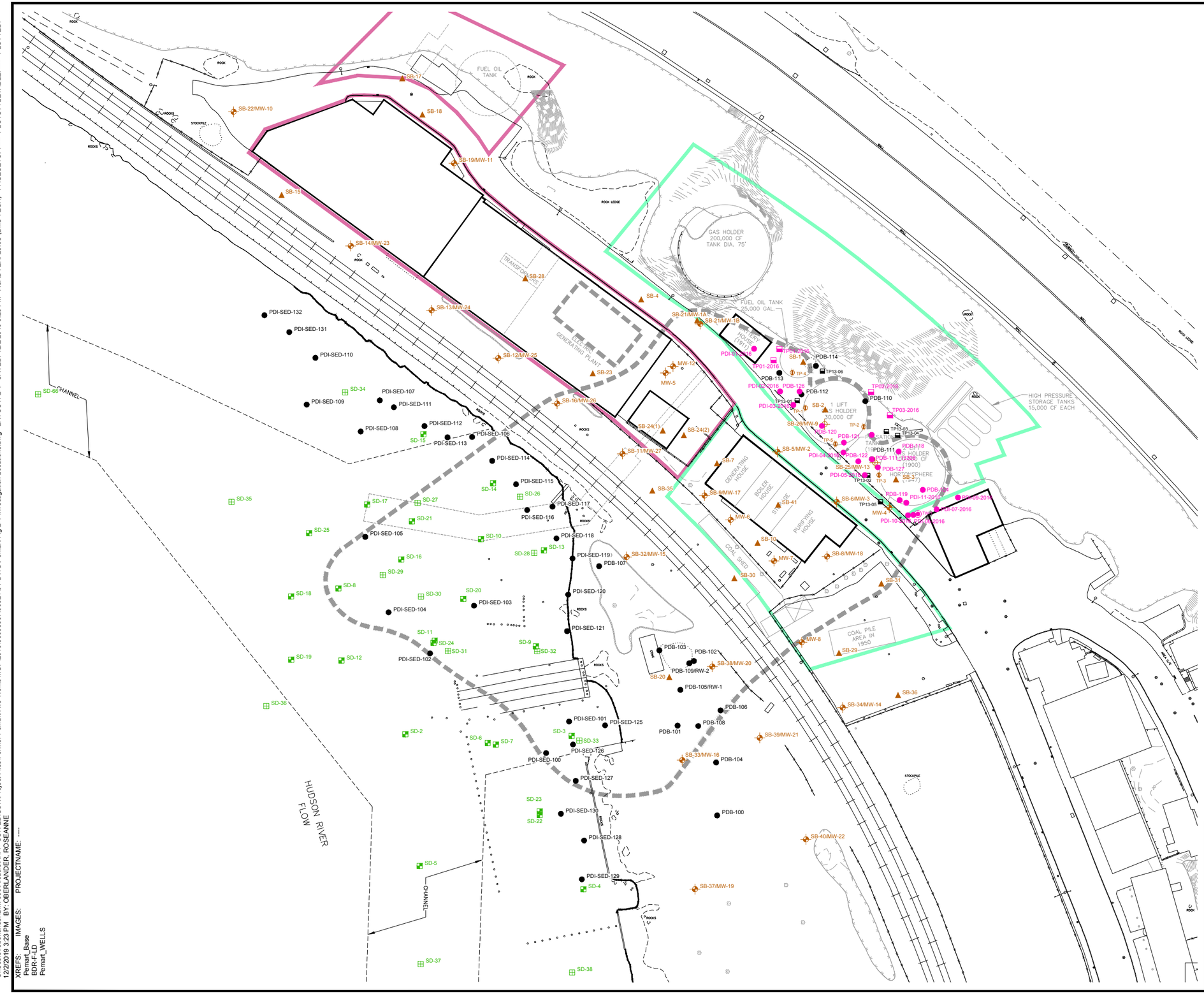
CON EDISON
FORMER PEMART AVENUE MGP SITE
PEEKSKILL, NEW YORK

PUBLIC WATER INTAKE/RECREATIONAL USE ACCESS LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 1-2

Z:\GISProjects_ENV\ConEd\PeekskillPWI_RecUse_Figure.mxd 3/16/2020 3:09:17 PM Last Saved By: jrapp



LEGEND:

- SD-4 — SUBSURFACE SEDIMENT SAMPLING LOCATION
- SD-35 — SURFACE SEDIMENT INVESTIGATION SAMPLING LOCATIONS
- SB-20 — RI SOIL BORING AND GRAB GROUNDWATER SAMPLE
- MW-8 — RI MONITORING WELL
- SB-26/MW-9 — RI MONITORING WELL (ROCK)
- TP-1 — RI TEST PIT
- TP13-01 — 2013 TEST PIT
- 2013 PDI BORING/TEST PIT LOCATIONS
- 2018 PDI TEST WELL LOCATION
- 2016/2018 PDI BORING LOCATION
- 2016/2018 PDI TEST PIT LOCATION
- BOUNDARY OF FORMER PEMART AVE MGP
- BOUNDARY OF FORMER ELECTRIC GENERATING PLANT
- EXISTING STRUCTURES
- SURFACE TOPOGRAPHY
- APPROXIMATE EXTENT OF IMPACTS

NOTES:

1. BASE MAP CREATED FROM ENSR/AECOM FIGURE ENTITLED PROPOSED SURFACE SEDIMENT SAMPLE LOCATIONS, DATED 3/09.
2. ALL LOCATIONS ASSUMED TO BE APPROXIMATE.
3. PDI-SED-120 LOCATION IS APPROXIMATE BASED ON PDI FIELD NOTES.

CON EDISON
FORMER PEMART AVENUE MGP SITE
PEEKSKILL, NEW YORK

INVESTIGATION LOCATIONS

ARCADIS Design & Consultancy for natural and built assets

FIGURE 2-1

C:\Users\roberlander\BIM 360\Arcadis\ANA - CON EDISON\Project Files\Former Pemart Ave Works MGP\2019\30005397.00021\01-DWG\Pemart-Fig 2-1-Investigation Locations.dwg LAYOUT: 2-1 SAVED: 12/2/2019 3:23 PM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 12/2/2019 3:23 PM BY: OBERLANDER, ROSEANNE

XREFS: IMAGES: PROJECTNAME: ----
Pemart_Base
BDR-F-LD
Pemart_WELLS

ATTACHMENT 1

Soil Boring and Test Pit Logs

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-1
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/6/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 3/6/2006	Coordinates:	X-648443.7 Y-895737	Depth of Boring: 4.00 feet
	Elevation:	7.60 NAVD 88	Depth to Water: --- feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex		Sample Method: Hand Auger	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0	1.5		Brown, F-M SAND, some silt, trace gravel, trace brick fragments, trace wood fragments; Dry; No Odor	SB1A	SB-1 (3-4)	
1						
2			Brown, F-M SAND, some silt, some gravel; Damp to Wet; No Odor			
3	2.4			SB1B		
4			Refusal at 4 ft bgs on metal tank remains			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-2
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/6/2006	Project: Remedial Investigation Report	Page: 1 of 1
	Project #: 01869-116	Geologist: B.P. McCarthy
End Date: 3/9/2006	Coordinates: X-648461.9 Y-895697	Depth of Boring: 7.10 feet
	Elevation: 7.50 NAVD 88	Depth to Water: 4.5 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA	Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Brown, F-M SAND and GRAVEL, w/ ash-like material; Dry; No Odor			
1			Gas Holder Pad			
2			No Recovery			
3						
4						
5	1.7		Brown, M-C SAND, some fine gravel; No Odor	SB2A	SB-2 (5-7)	
6			Brown, CLAY w/ F-M sand, trace fine gravel; Wet; No Odor			
7	NA		No Recovery	SB2B		

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-3
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/6/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 3/9/2006	Coordinates:	X-648520.5 Y-895640	Depth of Boring: 8.00 feet
	Elevation:	7.60 NAVD 88	Depth to Water: 5.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0						
1	NA		Brown, M-C SAND, some gravel, trace silt, sheen on GW in spoon; Dry; No Odor	SB3A	SB-3 (1-2)	
2	NA			SB3B		
3						
4						
5	42.7		Brown, M-C SAND, w/ root fragments, trace fine gravel, sheen on GW in spoon; Wet; MGP-like Odor	SB3C		
6						
7	845		Gray, M-C SAND, some fine gravel; Wet; MGP-like Odor	SB3D		
8			Black, M-C SAND, some slag, NAPL observed in soil; Wet; MGP-like Odor			
			Refusal at 8 ft bgs - possible Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-4
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/12/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/12/2005	Coordinates:	X-648309.5 Y-895789	Depth of Boring: 11.00 feet
	Elevation:	6.40 NAVD 88	Depth to Water: 6.0 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt w/ gravel base			
1						
2	1.1		Dark brown, F-M SAND, some F gravel, ground clinker/slag, coal fragments, brick fragments, ; Dry; No Odor	SB4A		
3	1.9			SB4B	SB-4 (3-3.5)	
4			Dark brown, F-M SAND, some F gravel, little silt, ground clinker/slag, coal fragments, brick fragments; Damp to Wet; No Odor			
5	0.8			SB4C	SB-4 (4.5-5.5)	
	0			SB4D		
6			Black to brown, M-F SAND, some silt, some broken gravel; Damp; No Odor			
7	0		Brown, M-F SAND, some silt, some broken gravel; Wet; No Odor	SB4E	SB-4 (7-9)	
8						
9	NA		No Recovery	SB4F		
10						
11			Refusal at 11 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-5/MW-2
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/1/2005	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/15/2005	Coordinates:	X-648422.31 Y-895663	Depth of Boring: 23.00 feet
	Elevation:	6.66 NAVD 88	Depth to Water: 4.21 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt w/ gravel base			
1	2.1		Dark brown, F SAND, some C sand, little clinker, coal fragments, debris; Dry; No Odor	SB5A		
2						
3	10.5			SB5B	MW-2 (3-3.5)	
4						
5	529.1			SB5C	MW-2 (4.5-5)	
6	154		BROKEN GRAVEL	SB5D	SB-5 (5-6)	
7						
8	NA		No Recovery	SB5E		
9						
10	32.3		Black, GRAVEL, little to no sand/silt, some NAPL, sheen; Saturated; Defined Odor	SB5F		
11						
12	NA		No Recovery	SB5G		
13						
14	0		Black to brown, SILTY SAND, trace gravel, grades to a greenish color; Saturated; Defined Odor	SB5H		
15						
16	0		Brown, F SANDY SILT, some F sand, some to little wood fragments; Wet; Defined Odor	SB5I	SB-5 (16-18)	
17						
18	0		Brown, F-M SAND, little gravel, little silt, trace wood fragments; Wet; No Odor	SB5J		
19						
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-5/MW-2
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/1/2005	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/15/2005	Coordinates:	X-648422.31 Y-895663	Depth of Boring: 23.00 feet
	Elevation:	6.66 NAVD 88	Depth to Water: 4.21 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	0			SB5K	SB-5 (20-22)	
22						
23			Refusal at 22.5 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-6/MW-3
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/1/2005	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/13/2005	Coordinates:	X-648471.45 Y-895622	Depth of Boring: 24.00 feet
	Elevation:	7.01 NAVD 88	Depth to Water: 4.71 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0						
1	1.7		Asphalt with gravel base	SB6A		
2			Dark Brown, F-M SAND, some coarse sand, some fine gravel, slag, coal fragments; Dry; No Odor			
3						
4	4.5			SB6B	SB-6 (3.5-4) / MW-3 (4.5-5)	
5	476		Dark Brown, F-M SAND, some coarse sand, some fine gravel, slag, coal fragments; Moist; Petro-like Odor	SB6C	SB-6 (5-6)	
6	102		No recovery	SB6D		
7			Black, M-F SAND, some broken gravel, visible NAPL, black stained wood and brick fragments; Wet; Strong Odor			
8	NA			SB6E		
9			Black, M-F SAND, some broken gravel, visible NAPL, black stained wood and brick fragments; Wet			
10	NA			SB6F		
11			No Recovery			
12	628		Grayish-black, F SILTY SAND, little organics; Wet; Sl. Odor	SB6G	SB-6 (12-14)	
13						
14	0		Brown, F SANDY SILT, trace clay; Wet; No Odor	SB6H		
15						
16	0		Brown, SILTY CLAY, some small clay laminae; Wet; No Odor	SB6I		
17						
18	NA		Brown to black, M-F SAND, some broken gravel, little silt; Wet; No Odor	SB6J		
19						
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-6/MW-3
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/1/2005	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/13/2005	Coordinates:	X-648471.45 Y-895622	Depth of Boring: 24.00 feet
	Elevation:	7.01 NAVD 88	Depth to Water: 4.71 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	0		Brown, M-F SAND, some coarse sand in matrix, trace silt, some broken rock at base of spoon; Wet; No Odor	SB6K	SB-6 (20-22)	
22	0		Brown, M-F SAND, some coarse sand in matrix, trace silt, some broken rock at base of spoon; Wet; No Odor	SB6L		
23						
24			Refusal at 24 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-7
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/15/2006	Project: Remedial Investigation Report	Page: 1 of 2
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/30/2006	Coordinates: X-648372.2 Y-895653	Depth of Boring: 39.00 feet
	Elevation: 7.20 NAVD 88	Depth to Water: 5.5 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe	Sample Method: Hand Auger/Split Spoon/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Concrete sidewalk			
1	2.3		Dark Brown, F-C SAND, some F gravel, trace silt, few cobbles; Dry to Damp; No Odor	SB7A		
2						
3			No recovery			
4	3.1		Dark brown, M-C SAND, little gravel, trace silt; Damp to Wet; No Odor	SB7B	SB-7 (4-5)	
5	25.8			SB7C		
6			Brown, M-F SAND, trace F gravel, some rock fragments; Dry; No Odor			
7	52.4		Gray, F-M SAND, some clay, trace fine gravel; Damp to Wet; MGP-like Odor	SB7D		
8			Gray to brown, F-M GRAVEL, some silt, NAPL sheen observed in spoon; Wet; Strong MGP-like Odor			
9	63.1			SB7E	SB-7 (9-11)	
10			Gray, SILT w/ F gravel, NAPL observed in silt; Wet; MGP-like Odor			
11	40.9			SB7F	SB-7 (11-13)	
12			Gray, SILT w/ F gravel, NAPL observed in silt, root fragments; Wet; MGP-like Odor			
13	19.7			SB7G	SB-7 (13-15)	
14			Gray, SILT, some clay, trace root fragments; Wet; MGP-like Odor			
15			No recovery 15 - 18 ft bgs - advanced Geoprobe casing to 17 ft bgs on 3/30/06			
16						
17						
18	4.2			SB7H		
19			Brown, SILT, little clay, trace F sand; Wet; Very Sl. Odor			
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-7
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/15/2006	Project: Remedial Investigation Report	Page: 2 of 2
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/30/2006	Coordinates: X-648372.2 Y-895653	Depth of Boring: 39.00 feet
	Elevation: 7.20 NAVD 88	Depth to Water: 5.5 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe	Sample Method: Hand Auger/Split Spoon/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	5.1		Brown, SILT and CLAY, color alternates to gray below 23 ft, small portions of rust brown silt; Wet; No Odor	SB7I		
25	3.9/3.4		Alternating CLAY and SILT; Wet; No Odor	SB7J	SB-7 (29.5-30)	
30	3.2/3.1		Brown, well sorted M SAND; Damp; No Odor	SB7K		
31			Brown, SILT and F-M SAND; Wet; No Odor			
33			Brown, SILT, little clay; Wet; No Odor			
35	3.4/3.1		Weathered bedrock	SB7L	SB-7 (38-39)	
36			No recovery			
39			Refusal at 39 ft bgs - Bedrock			

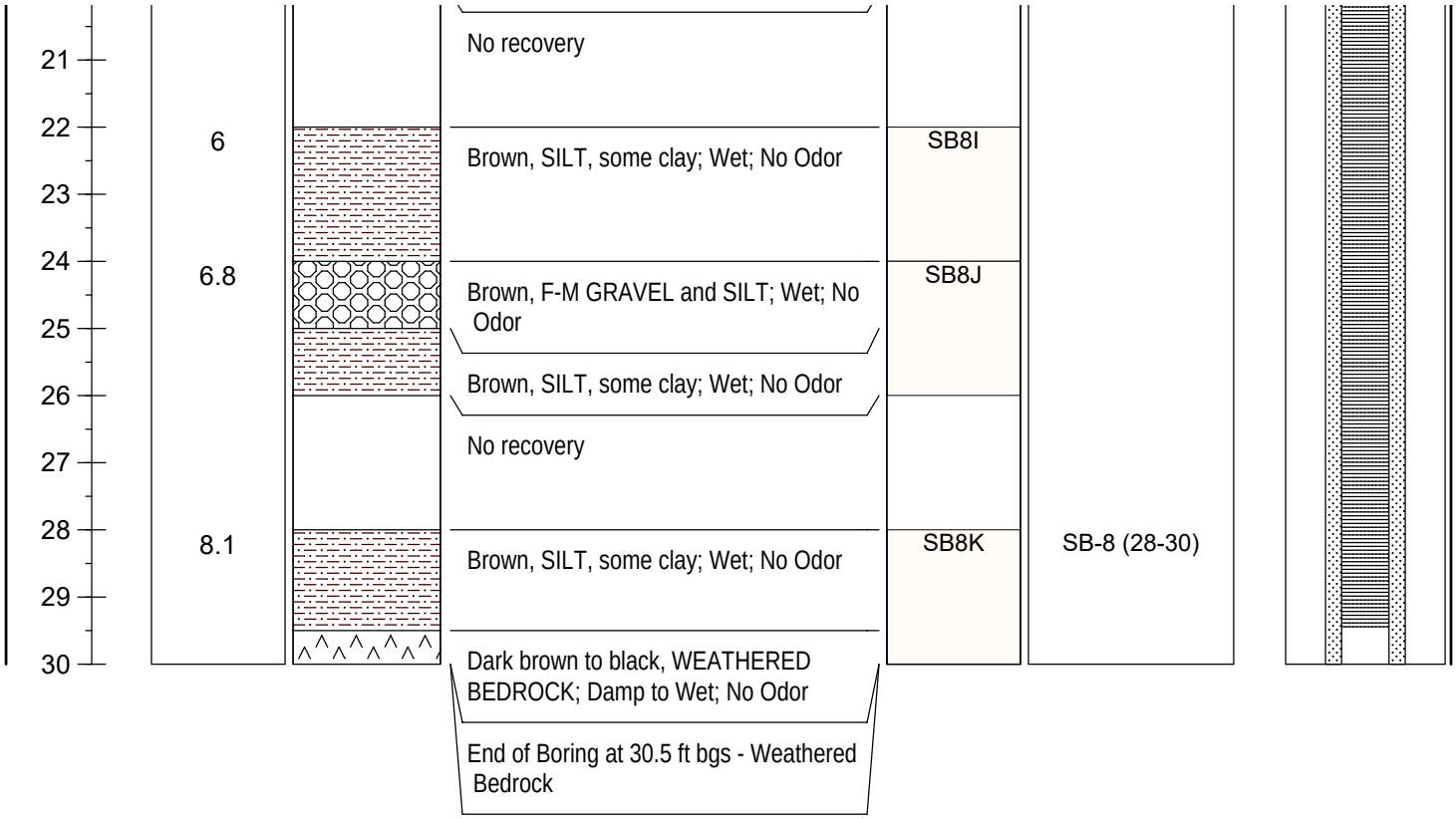
NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-8/MW-18
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/16/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 4/10/2006	Coordinates:	X-648463.45 Y-895576	Depth of Boring: 30.00 feet
	Elevation:	6.99 NAVD 88	Depth to Water: 3.45 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA/Wash Rotary		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Concrete			
1	0.4		Brown to dark brown, SAND, some loamy silt, trace to little gravel; Dry; No Odor	SB8A	SB-8 (1-2)	
2						
3						
4	6.7		Dark brown, M-C SAND, little gravel, little cobbles; Damp; Chemical-like Odor	SB8B	SB-8 (4-4.5)	
5	44.5		Brown, F-M SAND, trace silt, trace root fragments; Dry; No Odor	SB8C		
6						
7	53.7		Brown/gray, F-M SAND, some silt, trace F gravel, sheen observed; Wet; MGP-like Odor	SB8D		
8						
9	19.7		Brown/gray, F-M SAND, some silt, trace F gravel, sheen observed; Wet; MGP-like Odor	SB8E		
10						
11	NA		No recovery: mud rotary through obstruction	SB8F		
12						
13	10.3		Brown/gray, F GRAVEL w/ F sand, root material; Wet; Mod. MGP-like Odor	SB8G	SB-8 (13-15)	
14						
15			Brown/gray, SILT, trace root material, sheen on spoon; Wet; Mod. MGP-like Odor			
16						
17			Brown/gray, SILT, w/ F sand, trace root material, sheen on spoon; Wet; Mod. MGP-like Odor			
18	5.6		No recovery, steel casing installed to 18 ft bgs	SB8H		
19						
20			Brown, SILT, some clay; Wet; No Odor			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-8/MW-18
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/16/2006	Project: Remedial Investigation Report	Page: 2 of 2
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 4/10/2006	Coordinates: X-648463.45 Y-895576	Depth of Boring: 30.00 feet
	Elevation: 6.99 NAVD 88	Depth to Water: 3.45 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA/Wash Rotary	Sample Method: Hand Auger/Split Spoon	



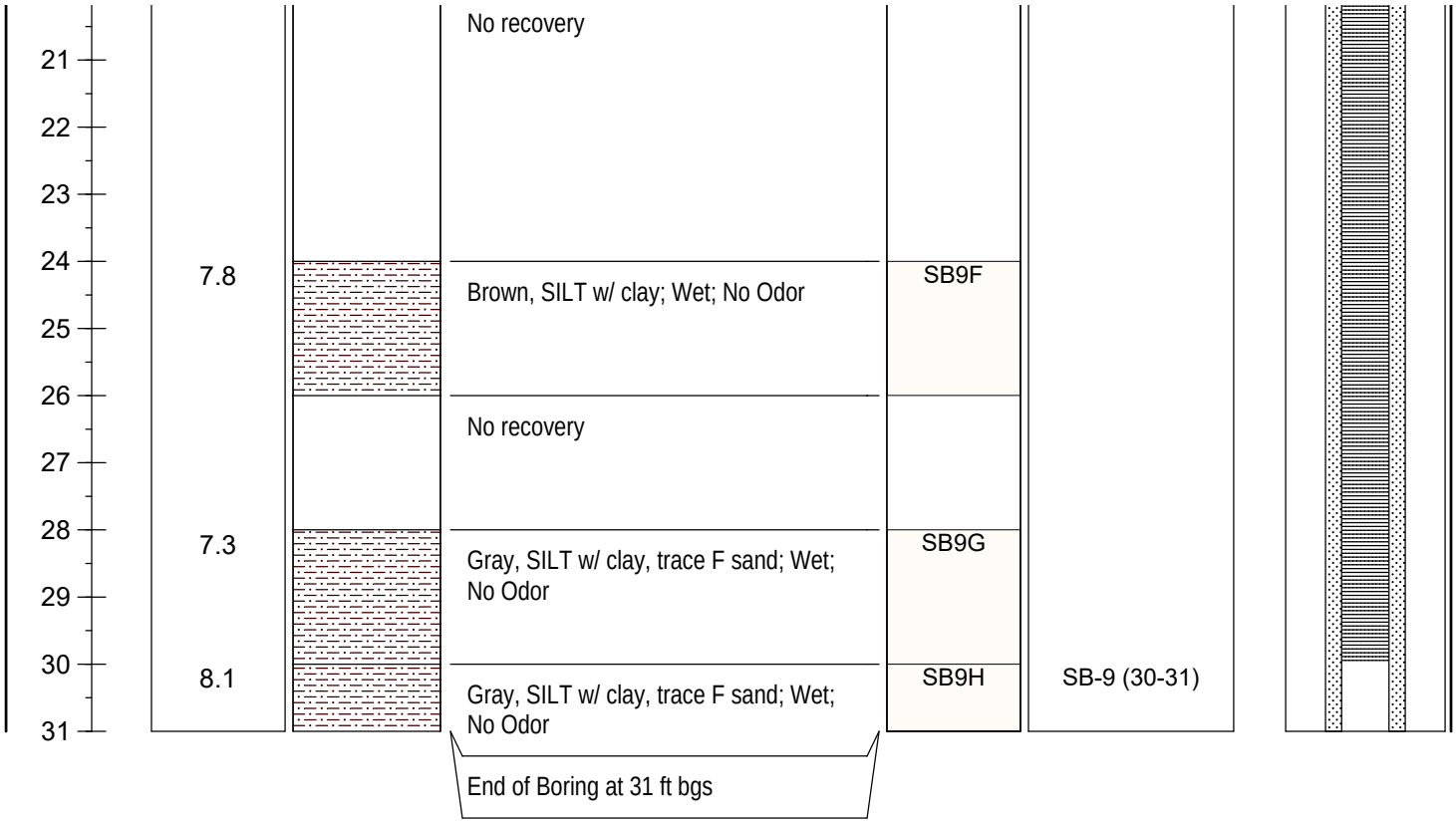
NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-9/MW-17
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/14/2006	Project: Remedial Investigation Report	Page: 1 of 2
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 4/11/2006	Coordinates: X-648361.95 Y-895627	Depth of Boring: 31.00 feet
	Elevation: 7.36 NAVD 88	Depth to Water: 6.95 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT
Drill Method: Vac Ex/HSA/Geoprobe/Wash Rotary		Sample Method: Hand Auger/Split Spoon/Macrocore

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt			
1	7.4		Brown, F-M SAND, little silt, trace gravel, trace cobbles; Dry; No Odor	SB9A		
2						
3						
4	6.5			SB9B	SB-9 (3.5-4)	
5	39.5		Brown, SAND and GRAVEL, trace to little silt, trace clay; Wet; Sl. MGP-like Odor	SB9C	SB-9 (8-10)	
6						
7			Black, M-C SAND, little gravel, NAPL observed in soil; Wet; Strong MGP-like Odor			
8						
9						
10	35.5		Black, M-C SAND, NAPL observed in soil; Wet; Strong MGP-like Odor	SB9D		
11						
12						
13						
14						
15	25.2/7.5		Dark gray, SILT, little M-F sand; Damp; Sl. Odor	SB9E	SB-9 (19-20)	
16						
17			Bluish-greenish gray, SILT and CLAY; Damp; Very Sl. Odor			
18						
19			No recovery: steel casing installed to 18 ft bgs			
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-9/MW-17
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/14/2006	Project: Remedial Investigation Report	Page: 2 of 2
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 4/11/2006	Coordinates: X-648361.95 Y-895627	Depth of Boring: 31.00 feet
	Elevation: 7.36 NAVD 88	Depth to Water: 6.95 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe/Wash Rotary	Sample Method: Hand Auger/Split Spoon/Macrocore	



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-10
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/10/2006	Project:	Remedial Investigation Report	Page: 1 of 3
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/15/2006	Coordinates:	X-648405.9 Y-895587	Depth of Boring: 45.00 feet
	Elevation:	7.30 NAVD 88	Depth to Water: 7.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/Wash Rotary		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt			
1	NA		Brown, SAND, some silt; Dry; No Odor	SB10A		
2			Concrete			
3	NA		Brick pad	SB10B	SB-10 (3-4)	
4			Brown to dark brown/black, F-M SAND, little gravel; Dry; No Odor			
5	12.6		No recovery	SB10C		
6			Brown, F-M SAND, ash-like marterial, brick fragments, slag, trace silt; Dry; No Odor			
7	68.9/124			SB10D		
8			Brown, F-M SAND, ash-like marterial, brick fragments, slag, trace silt; Dry to Wet; No Odor			
9	194			SB10E	SB-10 (9-11)	
10			Black, NAPL saturated ASH-LIKE MATERIAL, slag; Wet; MGP-like Odor			
11	8.8		Black, F SAND and SILT, trace F gravel; Wet; MGP-like Odor	SB10F	SB-10 (11-13)	
12						
13	12.5		Black, ASH-LIKE MATERIAL and SLAG, trace silt; Wet; MGP-like Odor	SB10G		
14			Dark gray, SILT w/ clay, NAPL staining; Wet; Strong MGP-like Odor			
15	9.7		Light and dark gray, SILT w/ clay, root material; Wet; Brackish Odor	SB10H		
16						
17	6.5		Dark gray, SILT w/ clay; Damp to Wet; No Odor	SB10I		
18			Dark gray, SILT w/ clay			
19	8.8		Gray, F-C SAND, trace F gravel; Saturated; No Odor	SB10J		
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-10
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/10/2006	Project:	Remedial Investigation Report	Page: 2 of 3
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/15/2006	Coordinates:	X-648405.9 Y-895587	Depth of Boring: 45.00 feet
	Elevation:	7.30 NAVD 88	Depth to Water: 7.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/Wash Rotary		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	5.9		Dark gray, F-C SAND, trace silt; Wet; No Odor	SB10K		
22						
23	4.2		Gray, SILT, some clay; Wet; No Odor	SB10L		
24			Brown, CLAY, some silt; Damp; No Odor			
25	0		Brown, CLAY, some silt	SB10M		
26						
27	0			SB10N		
28						
29	0			SB10O		
30						
31	0		Brown, M-C SAND, some F-M gravel, some clay; Wet; No Odor	SB10P		
32						
33	0		Brown, M-C SAND, F gravel, trace clay; Wet; No Odor	SB10Q		
34						
35	0		Brown, M-C SAND, some F gravel; Wet; No Odor	SB10R		
36						
37	41.4		Brown, M-C SAND, some silt, trace F gravel; Wet; No Odor	SB10S		
38						
39	40.6		Brown, M-C SAND, some silt, trace F gravel	SB10T		
40						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-10
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/10/2006	Project: Remedial Investigation Report	Page: 3 of 3
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/15/2006	Coordinates: X-648405.9 Y-895587	Depth of Boring: 45.00 feet
	Elevation: 7.30 NAVD 88	Depth to Water: 7.0 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/Wash Rotary	Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
41	38.5		Brown, SILT, some F sand, trace F gravel, trace clay; Wet; No Odor	SB10U	SB-10 (41-43)	
42						
43						
44			Refusal at 43.5 ft bgs - Bedrock			
45						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-11/MW-27
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project:	Remedial Investigation Report	Page: 1 of 3
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/29/2006	Coordinates:	X-648293.92 Y-895661	Depth of Boring: 43.00 feet
	Elevation:	6.51 NAVD 88	Depth to Water: 5.18 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe		Sample Method: Hand Auger/Split Spoon/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0						
1	0.3		Black, ASH-LIKE MATERIAL, some coal fragments, trace root fragments, some fill material; Dry; No Odor	SB11A	SB-11 (1-2)	
2						
3						
4	245		Dark brown, M-C SAND, some silt, trace F gravel, trace clay, NAPL present; Wet; MGP-like Odor	SB11B	SB-11 (4-5)	
5	9.2			SB11C		
6			Brown, F-M SAND, trace F gravel, trace silt; Damp to Wet; No Odor			
7	50.9		Dark brown, F-M SAND, trace silt, trace F gravel, trace ash-like material; Damp to Wet; Petro-like Odor	SB11D		
8						
9	61.6		Dark brown, F-M SAND, trace silt, trace F gravel, trace ash-like material, NAPL saturated; Damp to Wet; Petro-like Odor	SB11E	SB-11 (9-11)	
10						
11	37.3		Black to dark gray, M-C SAND, some ash-like material, trace silt, wood, NAPL saturated; Wet; MGP-like Odor	SB11F		
12						
13			Black to dark gray, M-C SAND, some ash-like material, trace silt, wood, NAPL saturated			
14	34.8			SB11G		
15			Black to dark gray, M-C SAND, some ash-like material, trace silt, wood, NAPL saturated			
16	50.5			SB11H		
17			Black to dark gray, M-C SAND, some ash-like material, trace silt, wood, NAPL saturated			
18	9.4			SB11I	SB-11 (18-20)	
19			Gray, SILT w/clay, trace root material; Wet; Sl. Odor			
20			Gray, SILT w/clay, trace root material;			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-11/MW-27
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project:	Remedial Investigation Report	Page: 2 of 3
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/29/2006	Coordinates:	X-648293.92 Y-895661	Depth of Boring: 43.00 feet
	Elevation:	6.51 NAVD 88	Depth to Water: 5.18 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe		Sample Method: Hand Auger/Split Spoon/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	0		Wet; No Odor	SB11J		
22			Dark gray, SILT, some clay, trace F sand, wood fragments; Damp			
23						
24						
25	0		Brown to dark brown, PEAT, little silt, trace clay, trace M-F sand; Damp; Organic Odor	SB11K		
26						
27						
28						
29						
30	0		Brown to dark brown, PEAT, little silt, trace clay, trace M-F sand	SB11L	SB-11 (32-34)	
31						
32			Dark gray to black, SILT and CLAY, trace F sand, little peat throughout; Damp			
33						
34						
35	0		Dark gray to black, SILT and CLAY, trace F sand, little peat throughout; Wet	SB11M		
36			Gray to pale greenish gray, SAND, some clay, little silt			
37						
38			Dark to light brown, WEATHERED GNEISS, little F-C sand, trace silt, trace clay			
39						
40	0			SB11N	SB-11 (41-43)	

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-11/MW-27
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project:	Remedial Investigation Report	Page: 3 of 3
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/29/2006	Coordinates:	X-648293.92 Y-895661	Depth of Boring: 43.00 feet
	Elevation:	6.51 NAVD 88	Depth to Water: 5.18 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe		Sample Method: Hand Auger/Split Spoon/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
41			Brown, M-C SAND, trace silt, trace clay, weathered bedrock; Damp; No Odor			
42						
43			Refusal at 43 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-12/MW-25
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: J.T. Imhoff/S.Olson
End Date: 3/27/2006	Coordinates:	X-648190.98 Y-895741	Depth of Boring: 30.00 feet
	Elevation:	6.04 NAVD 88	Depth to Water: 4.7 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0						
1	NA		Black , F-M SAND, little silt, organic material - roots, twigs, some gravel w/ ash-like marterial, brick fragments; Dry; No Odor	SB12A		
2						
3						
4	NA			SB12B	SB-12 (4-5)	
5	6.9		Soupy GRAVEL, quartz fragments, silt	SB12C		
6			Gray to olive gray, SILT w/ laminations			
7			Dark brown to black, M-C SAND			
8			Brown to dark brown, M-C SAND, little F gravel and F sand, little silt; No Odor			
9						
10	5.5		Light gray to greenish gray, M-C SAND, F gravel, little silt, F sand; Saturated; No Odor	SB12D	SB-12 (10-15)	
11						
12						
13						
14						
15	NA		No recovery	SB12E		
16						
17						
18	5		Gray, F-M SAND, trace to little silt; Saturated; No Odor	SB12F		
19						
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-12/MW-25
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project: Remedial Investigation Report	Page: 2 of 2
	Project #: 01869-116	Geologist: J.T. Imhoff/S.Olson
End Date: 3/27/2006	Coordinates: X-648190.98 Y-895741	Depth of Boring: 30.00 feet
	Elevation: 6.04 NAVD 88	Depth to Water: 4.7 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/Geoprobe	Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	7.3		Gray, F-M SAND, trace to little silt	SB12G	SB-12 (25-30)	
22						
23						
24						
25	7.9		F-C SAND and GRAVEL, little silt; Wet; No Odor	SB12H		
26						
27						
28						
29						
30			End of Boring at 30 ft bgs			

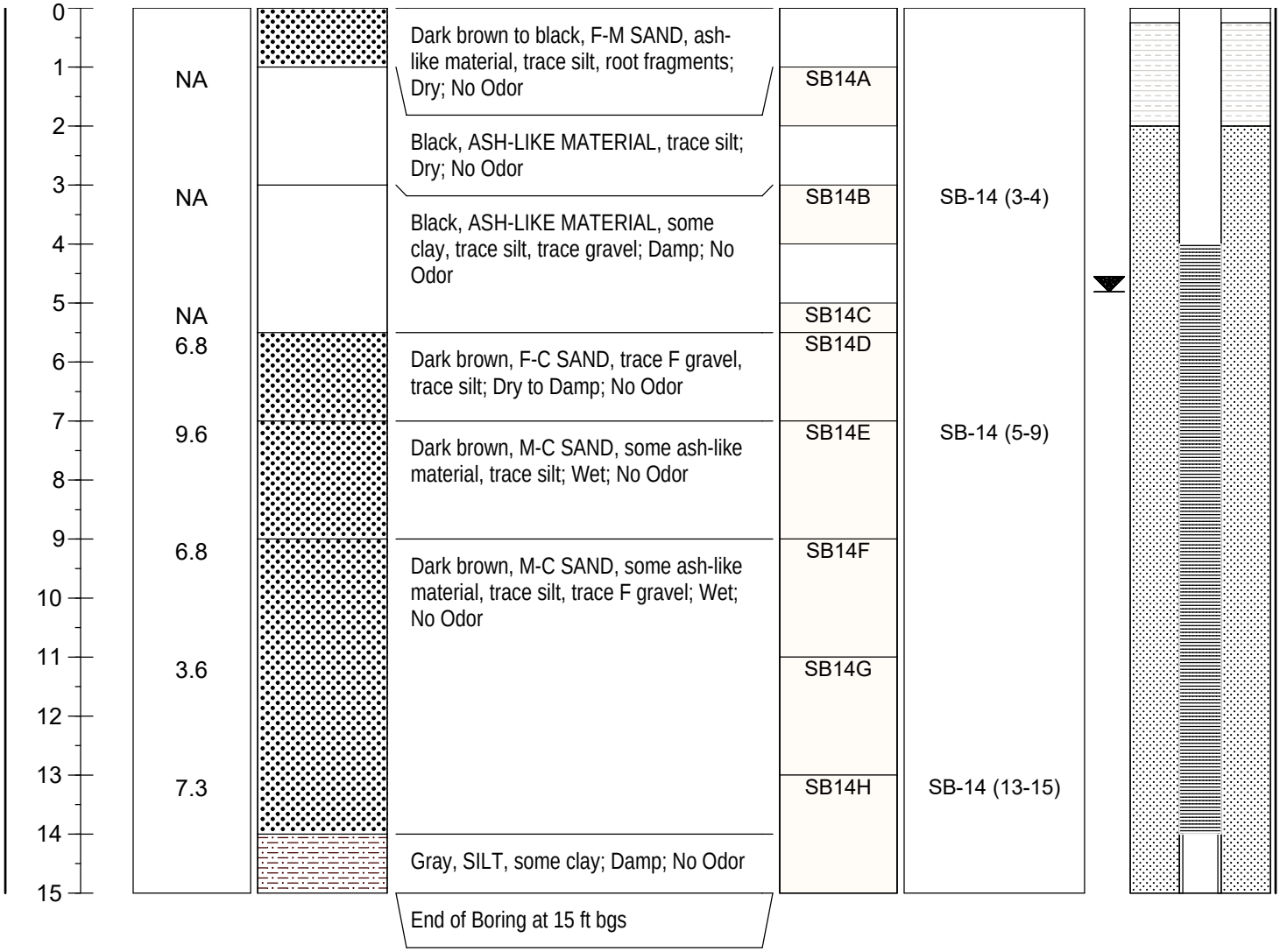
NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-13/MW-24
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/16/2006	Coordinates:	X-648135.85 Y-895780	Depth of Boring: 17.00 feet
	Elevation:	6.23 NAVD 88	Depth to Water: 4.65 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–2	NA		Black, F-M SAND, ash-like material, Fill; Dry; No Odor	SB13A		
2–4	NA		Black, F-M SAND, ash-like material, Fill; Damp; No Odor	SB13B	SB-13 (3-4)	
4–6	8.9		Dark red to black, ASH-LIKE MATERIAL, some F sand, trace slag; Damp to Wet; Petro-like Odor	SB13C	SB-13 (5-7)	
6–8	NA		Dark red to black, ASH-LIKE MATERIAL, some F sand, trace slag; Saturated; Petro-like Odor	SB13D		
8–10	12.3		Gray, M-C SAND, some clay, trace F gravel; Saturated; Sl. Petro-like Odor	SB13E		
10–12	6.5		Gray, M-C SAND, trace F gravel; Wet to Saturated; No Odor	SB13F		
12–14	4.8			SB13G		
14–16	12.1			SB13H	SB-13 (15-17)	
16–17			Gray, SILT, some clay; Damp to Wet; No Odor			
			End of Boring at 17 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-14/MW-23
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/8/2006	Project: Remedial Investigation Report	Page: 1 of 1
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/16/2006	Coordinates: X-648068.83 Y-895834	Depth of Boring: 15.00 feet
	Elevation: 6.48 NAVD 88	Depth to Water: 4.81 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA	Sample Method: Hand Auger/Split Spoon	



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-15
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: J.T. Imhoff
End Date: 3/9/2006	Coordinates:	X-648012 Y-895875	Depth of Boring: 3.50 feet
	Elevation:	6.00 NAVD 88	Depth to Water: --- feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex		Sample Method: Hand Auger	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0 1 2 3	NA		Dark brown to black, F-C SAND, ash-like material and coal fragments Pipe encountered, Boring terminated at 3 ft bgs	SB15A		

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-16/MW-26
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project:	Remedial Investigation Report	Page: 1 of 3
	Project #:	01869-116	Geologist: J.T. Imhoff
End Date: 3/29/2006	Coordinates:	X-648239.81 Y-895703	Depth of Boring: 40.00 feet
	Elevation:	6.32 NAVD 88	Depth to Water: 5.2 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe		Sample Method: Hand Auger/Split Spoon/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–4			Black, F-M SAND and ash-like material; Dry; No Odor			
3–4			Black, F-M SAND, ash-like material, and gravel for railroad ballast; Dry; No Odor			
4	NA		Black to dark brown granular FILL	SB16A	SB-16 (4-5)	
5	NA		Brown, F-M SAND, trace silt, Fill; Damp	SB16B		
6–7			Black, F-M SAND, little gravel, very poor recovery			
7	10.9		Black, M SAND, some gravel, little silt, Oil-like material observed; Wet; Mod. Odor	SB16C		
9	30.4		Brown to olive gray brown, SILT, Oil-like material observed; Wet	SB16D		
10–11			Olive gray/green, M-C SAND, little gravel, Oil-like material observed; Wet; Mod. Odor			
12			No recovery			
13	5.7		Black, M-C SAND, little gravel	SB16E		
15	15.2		Brown to olive brown, SAND and SILT, little gravel, Oil-like material observed; Mod. Odor	SB16F		
17	58.4			SB16G	SB16 (17-19)	
19	15.7		Black, M-C SAND, trace gravel, little silt; Wet; Mod. Odor	SB16H		
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-16/MW-26
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project: Remedial Investigation Report	Page: 2 of 3
	Project #: 01869-116	Geologist: J.T. Imhoff
End Date: 3/29/2006	Coordinates: X-648239.81 Y-895703	Depth of Boring: 40.00 feet
	Elevation: 6.32 NAVD 88	Depth to Water: 5.2 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe	Sample Method: Hand Auger/Split Spoon/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	10.6		Black SAND	SB16I		
22			Grey SILT; Wet			
23	5.6		Grey SILT, trace NAPL in soil; Wet; Mod. Odor	SB16J	SB-16 (22.5-23)	
	24.1			SB16K		
24			Brown, PEAT; Damp; Sl. Organic Odor			
25	16.8			SB16L		
26						
27						
28						
29						
30	2.4			SB16M	SB-16 (32-35)	
31			Dark brown, SANDY SILT; Wet; Organic Odor			
32						
33			Light gray, SILTY SAND with very fine sand; Wet to Saturated; No Odor			
34						
35	0.8/1.3		Tan/grey to brown, SILT, little sand, silt content increases with depth; Wet to Saturated; No Odor	SB16N	SB-16 (38-39)	
36						
37						
38						
39						
40						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-16/MW-26
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/9/2006	Project:	Remedial Investigation Report	Page: 3 of 3
	Project #:	01869-116	Geologist: J.T. Imhoff
End Date: 3/29/2006	Coordinates:	X-648239.81 Y-895703	Depth of Boring: 40.00 feet
	Elevation:	6.32 NAVD 88	Depth to Water: 5.2 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/HSA/Geoprobe		Sample Method: Hand Auger/Split Spoon/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
			Refusal at 40 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-17
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/2/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: K. Kitchin
End Date: 9/2/2005	Coordinates:	X-648111.6 Y-895972	Depth of Boring: 3.50 feet
	Elevation:	7.00 NAVD 88	Depth to Water: --- feet
Drill Subcontractor: EPS		Drill Rig Model:	
Drill Method: Vac Ex		Sample Method: Hand Auger	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt with gravel subbase			
1			Fill			
2						
3	19.3		Black to gray, SILTY SAND, some gravel, trace slag; Wet; Sl. Odor	SB17A	SB-17 (3-3.5)	

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

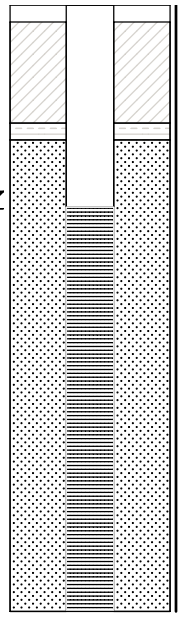
ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-18
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/7/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: K. Kitchin
End Date: 9/7/2005	Coordinates:	X-648128.2 Y-895942	Depth of Boring: 3.50 feet
	Elevation:	7.00 NAVD 88	Depth to Water: --- feet
Drill Subcontractor: EPS		Drill Rig Model:	
Drill Method: Vac Ex		Sample Method: Hand Auger	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt with gravel subbase			
1			Fill			
2	15.1			SB18A	SB-18 (2-2.5)	
3	0.2		Gravel with cobbles, trace F-C Sand	SB18B		
			End of Boring at 3.5 Feet (Refusal during jackhammer/vac-ex) - Large boulder or possible Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-19/MW-11
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/8/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/8/2005	Coordinates:	X-648154.4 Y-895902	Depth of Boring: 9.00 feet
	Elevation:	7.22 NAVD 88	Depth to Water: 3.02 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt with gravel base			
1	2.4		Dark brown, F SAND, some M-C sand, little gravel, trace debris, ash-like material; Dry; No Odor	SB19A		
2						
3	3.1		Dark brown, F SAND, some M-C sand, little gravel, trace debris, ash-like material, silt content increases to 5 ft bgs; Moist; Sl. Odor	SB19B		
4	0			SB19C		
5	0.4		Gray to black, SILTY SAND, some broken gravel; Wet; Sl. Odor	SB19D	SB-19 (5-5.5)	
6						
7	NA		No recovery	SB19E	SB-19/MW-11	
8						
9			Refusal at 9 ft bgs - Bedrock			



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-20
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/24/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 3/30/2006	Coordinates:	X-648332.75 Y-895476	Depth of Boring: 23.00 feet
	Elevation:	NAVD 88	Depth to Water: 6.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–2			Dark Brown/black, F-C SAND, some F-M gravel, some concrete, roots, wood fragments, trace cobbles			
2–4	2.7		Gray to dark brown/black, F-C SAND, little gravel, some ash-like material, trace cobbles; Wet	SB20A		
4–5	2.5		Brown. F-M SAND, trace silt; Wet; No Odor	SB20B	SB-20 (4.5-5)	
5–6	11.7			SB20C		
6–7			Dark brown, M-F SAND, some root material, trace F-M gravel; Dry; No Odor			
7–8	11.7		Brown, F-C SAND, some silt, trace root material; Wet; No Odor	SB20D		
8–9						
9–10	10.4			SB20E		
10–11						
11–12	11.3		Brown, F-C SAND, trace F-M gravel, trace silt; Wet; No Odor	SB20F		
12–13						
13–14	11.5		Brown to gray, F-C SAND, trace M gravel, trace silt; Wet; No Odor	SB20G		
14–15						
15–16	13.6		Gray, F-C SAND, trace silt, trace clay; Wet; No Odor	SB20H		
16–17						
17–18	12.9		Gray, F-C SAND, trace silt, trace sheen on groundwater; Wet; No Odor	SB20I		
18–19						
19–20	12.6/72.7			SB20J	SB-20 (20-22)	

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

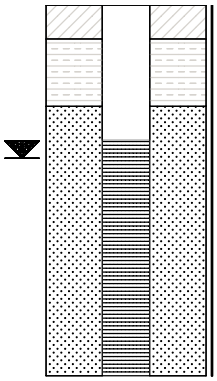
ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-20
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/24/2006	Project: Remedial Investigation Report	Page: 2 of 2
	Project #: 01869-116	Geologist: K. Kitchin/S. Olson
End Date: 3/30/2006	Coordinates: X-648332.75 Y-895476	Depth of Boring: 23.00 feet
	Elevation: NAVD 88	Depth to Water: 6.0 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA	Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	70.4/8.8		Gray, F-C SAND, trace silt, trace sheen on groundwater, NAPL, sheen; Wet; MGP-like Odor	SB20K	SB-20 (22-23)	
22			Gray/green, SILT, some clay; Damp; MGP-like Odor			
23			End of Boring at 23 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-21/MW-1A
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/2/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: K. Kitchin/B.P. McCarthy
End Date: 3/24/2006	Coordinates:	X-648355.83 Y-895771	Depth of Boring: 5.50 feet
	Elevation:	6.50 NAVD 88	Depth to Water: 2.27 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt			
1			No recovery			
2						
3	1.9		Brown, F-M SAND, some silt, some gravel, rocks and roots to 5 ft bgs; Dry; No Odor	SB21A	SB-21 (0-5)	
4						
5	27.8		Dark brown, F GRAVEL, some C sand, trace silt, trace root fragments; Wet; Unidentifiable Odor	SB21B	SB-21 (5-5.5)	
			Refusal at 5.5 ft bgs - Bedrock			



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-21/MW-1B
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/2/2005	Project: Remedial Investigation Report	Page: 1 of 1
	Project #: 01869-116	Geologist: K. Kitchin/B.P. McCarthy
End Date: 4/4/2006	Coordinates: X-648358.31 Y-895769	Depth of Boring: 16.00 feet
	Elevation: 6.49 NAVD 88	Depth to Water: 2.5 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA/Wash Rotary/Rock Core	Sample Method: Hand Auger/Split Spoon/NX Core Barrel	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–3			Asphalt; No recovery			
3–6			Brown, F-M SAND, some silt, some gravel, rocks and roots to 5 ft bgs; Dry; No Odor			
6–7	NA		Dark brown, F GRAVEL, some C sand, trace silt, trace root fragments; Wet; Unidentifiable Odor	SB21C		
7–11			Dark gray, GNEISS, light gray felsic bands, micacious, pyrite mineralization along some fracture planes			
11–16	NA		Gray, GNEISS, trace felsic bands, micacious, two fractures, one break	SB21D		
16			End of Boring at 16 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-22/MW-10
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/30/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/8/2005	Coordinates:	X-647971.83 Y-895945	Depth of Boring: 14.00 feet
	Elevation:	6.86 NAVD 88	Depth to Water: 3.8 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt			
1			No recovery			
2			Black to brown, SILTY SAND, some gravel, wood fragments, metal debris; Dry; Sl. Odor			
3	1057			SB22A		
4	110		Black, SILTY SAND, some gravel, little coal, brick fragments, slag; Dry; Sl. Odor	SB22B		
5	8.5			SB22C	MW-10 (4.5-5)	
	NA			SB22D		
6			Black and gray, SILTY SAND, little gravel, glass fragments, wood fragments; Wet; Sl. Odor			
7	1.6			SB22E		
8			No recovery, sluff from previous VAC EX activity			
9	NA		Black, M-F SAND, some coarse sand, some silt, some broken F gravel; Wet; No Odor	SB22F		
10						
11	0.5		Black, M-F SAND, some coarse sand, some silt, some broken M gravel	SB22G	MW-10 (11-13)	
12			Black, M-C SAND, some silt, small gravel; Wet; No Odor			
13						
14			Black, SILTY SAND, no coarse material, no gravel, some wood fragments; Wet; No Odor			
			Refusal at 14 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-23
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/17/2005	Project: Remedial Investigation Report	Page: 1 of 1
	Project #: 01869-116	Geologist: K. Kitchin/S. Olson
End Date: 8/17/2005	Coordinates: X-648269.33 Y-895727	Depth of Boring: 5.00 feet
	Elevation: NAVD 88	Depth to Water: 5.0 feet
Drill Subcontractor: Geosearch, Inc		Drill Rig Model:
Drill Method: Hand Auger		Sample Method: Hand Auger

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Concrete floor			
1			No recovery, VOID SPACE under floor			
2						
3						
4	28.3		Reddish-brown, F-M SAND, little broken gravel, little organic material; Damp; No Odor	SB23A	SB-23 (3.3-3.5)	
5	31.7		Reddish-brown to black, F-M SAND, little broken gravel, little organic material; Damp; No Odor	SB23B	SB-23 (4-4.5)	
			End of Boring at 5 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-24(1)
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 9/9/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: S. Olson/B.P. McCarthy
End Date: 3/15/2006	Coordinates:	X-648328 Y-895680	Depth of Boring: 4.80 feet
	Elevation:	6.10 NAVD 88	Depth to Water: --- feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex		Sample Method: Hand Auger	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0	2.1		Concrete Floor of Garage			
1			Brown, F-M SAND, some gravel, concrete and brick fragments; Dry; No Odor	SB24(1)A		
2						
3			GNEISS, large angular boulders			
4			End of Boring at 4.8 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-24(2)
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/16/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/22/2006	Coordinates:	X-648344.8 Y-895676	Depth of Boring: 8.00 feet
	Elevation:	6.10 NAVD 88	Depth to Water: 5.5 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Concrete floor			
1	2.9		Brick and concrete debris mixed with large rocks	SB24(2)A		
2						
3						
4						
5	24.4		Brown, F-M SAND, some F-M gravel, NAPL; Dry to Damp; Oil-like Odor	SB24(2)B		
6						
7	78.5		Dark brown/green, F-M SAND, some F-M gravel, NAPL; Wet; Oil-like Odor	SB24(2)C	SB-24 (7-8)	
8			Refusal at 8ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-25/MW-13
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/6/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 4/4/2006	Coordinates:	X-648503.1 Y-895654	Depth of Boring: 25.00 feet
	Elevation:	7.65 NAVD 88	Depth to Water: 2.8 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA/Wash Rotary/Rock Core		Sample Method: Hand Auger/Split Spoon/NX Core Barrel	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–2	NA		Dark brown, F-M SAND and GRAVEL, ash-like material, clay			
2–3	NA		Tan, F-M SAND, some silt, dry; no odor; No Odor	SB25A	SB-25 (2-3)	
3–5	170		Dark brown, F-M SAND, bricks fragments, wood fragments, coal fragments; Damp; Sl. MGP-like Odor			
5–7	174		Black, TAR-LIKE MATERIAL, some fill material; Dry to Damp; Strong MGP-like Odor	SB25B		
7–9	NA		Dark gray to black, TAR-LIKE MATERIAL and M-F SAND; Damp to Wet; Strong MGP-like Odor	SB25C	SB-25 (7-8)	
9–11	NA		Dark gray to black, TAR-LIKE MATERIAL and M-F SAND, wood fragments; Wet; Strong MGP-like Odor	SB25D		
11–12	NA		Dark brown, M-C SAND w/ silt, trace F gravel; Wet; MGP-like Odor	SB25E		
12–14	NA		Dark brown to black, NAPL SATURATED F-M GRAVEL, some silt, weathered rock fragments; Wet; Strong MGP-like Odor	SB25F		
14–15	NA		Dark brown to black, NAPL SATURATED F-M GRAVEL, some silt			
15–16	NA		Brown, F-M SAND, some silt, trace F gravel, NAPL observed; Wet to Saturated; MGP-like Odor	SB25G		
16–20			Rock core begins No Recovery			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-25/MW-13
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/6/2006	Project: Remedial Investigation Report	Page: 2 of 2
	Project #: 01869-116	Geologist: B.P. McCarthy
End Date: 4/4/2006	Coordinates: X-648503.1 Y-895654	Depth of Boring: 25.00 feet
	Elevation: 7.65 NAVD 88	Depth to Water: 2.8 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA/Wash Rotary/Rock Core	Sample Method: Hand Auger/Split Spoon/NX Core Barrel	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	NA		Dark grey, weathered GNEISS, foliated gneiss, fractured	SB25H		
22						
23						
24						
25			End of Boring at 25 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-26/MW-9
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/6/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 4/12/2006	Coordinates:	X-648461.43 Y-895686	Depth of Boring: 30.00 feet
	Elevation:	7.40 NAVD 88	Depth to Water: 2.99 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA/Wash Rotary/Rock Core		Sample Method: Hand Auger/Split Spoon/NX Core Barrel	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0						
1	0		Black, FILL MATERIAL, ash-like material, slag, F-M sand, trace silt; Dry; No Odor	SB26A		
2						
3	12.5		Brown, FILL MATERIAL, ash-like material, slag, F-M sand, some brick fragments, trace silt	SB26B	SB-26 (4-5)	
4			Reddish-brown, F-M SAND, some gravel, trace silt; Wet; No Odor			
5	5.8			SB26C		
6			Drak brown, F-M SAND, some clay, trace F gravel; Damp; No Odor			
7	323			SB26D	SB-26 (7-8)	
8			Brown to dark gray, CLAY, some F sand, trace gravel, NAPL, sheen on groundwater; Wet; MGP-like Odor			
9			Weathered Bedrock No Recovery			
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-26/MW-9
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/6/2006	Project: Remedial Investigation Report	Page: 2 of 2
	Project #: 01869-116	Geologist: B.P. McCarthy
End Date: 4/12/2006	Coordinates: X-648461.43 Y-895686	Depth of Boring: 30.00 feet
	Elevation: 7.40 NAVD 88	Depth to Water: 2.99 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA/Wash Rotary/Rock Core	Sample Method: Hand Auger/Split Spoon/NX Core Barrel	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	NA		Dark gray, GNEISS, light gray felsic bands, micacious, pyrite mineralization along some fracture planes; No Odor	SB26E		
22						
23						
24						
25	NA			SB26F		
26						
27						
28						
29						
30			End of Boring at 30 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-28
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 5/2/2006	Project: Remedial Investigation Report	Page: 1 of 2
	Project #: 01869-116	Geologist: B.P. McCarthy
End Date: 5/2/2006	Coordinates: X-648213.46 Y-895806	Depth of Boring: 20.00 feet
	Elevation: NAVD 88	Depth to Water: --- feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55 & 6610DT	
Drill Method: Hand Auger/Geoprobe	Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Original boring log misplaced and/or destroyed - General location geology: Brown, SAND and GRAVEL			
5	NA			SB28A	SB-28 (5-10)	
18	NA			SB28B	SB-28 (18-20)	
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-28
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 5/2/2006	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 5/2/2006	Coordinates:	X-648213.46 Y-895806	Depth of Boring: 20.00 feet
	Elevation:	NAVD 88	Depth to Water: --- feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 6610DT	
Drill Method: Hand Auger/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
			End of Boring at 20 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-29
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/16/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/24/2006	Coordinates:	X-648473.3 Y-895496	Depth of Boring: 19.00 feet
	Elevation:	8.20 NAVD 88	Depth to Water: 7.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0						
1	1.1		Asphalt	SB29A		
2			Brown, COBBLES and M-F SAND; Dry; No Odor			
3			Olive brown to brown, M-F SAND, little gravel to cobbles, trace silt, various debris; Dry; No Odor			
4	0.9			SB29B	SB-29 (4-4.5)	
5	NA		Brown, F-M SAND, trace silt, trace fill material; Dry to Damp; No Odor	SB29C		
6						
7	NA		Black and gray, F-M SAND, some silt, trace ash-like material; Wet; No Odor	SB29D	SB-29 (7-9)	
8						
9	NA		Dark gray, F-M GRAVEL, trace silt; Wet; No Odor	SB29E		
10						
11	NA		No recovery, ground through rock	SB29F		
12						
13	NA			SB29G		
14						
15	NA		Olive, F SAND, some F gravel, trace silt; Saturated; No Odor	SB29H		
16						
17	NA		Olive, F SAND, some F gravel, trace silt, NAPL, sheen observed; Saturated; Strong MGP-like Odor	SB29I	SB-29 (17-19)	
18						
19			End of Boring at 19 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-30
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/28/2006	Project: Remedial Investigation Report	Page: 1 of 3
	Project #: 01869-116	Geologist: S. Olson
End Date: 3/28/2006	Coordinates: X-648386.6 Y-895558	Depth of Boring: 40.00 feet
	Elevation: 8.20 NAVD 88	Depth to Water: 7.0 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/Geoprobe	Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0	0.9		Brown to dark brown, F-M SAND, some ash-like material; Dry; No Odor	SB30A		
4	0.8			SB30B	SB-30 (4-5)	
5	5.1/423			SB30C	SB-30 (8.5-10)	
6			Brown, SILTY SAND, root material, crushed slag; Wet			
9			NAPL SATURATED F-M SAND, some silt; Wet; Strong MGP-like Odor			
10	165/177		Interbedded layers of F-C SAND, coarser layers saturated with NAPL; Saturated; Strong MGP-like Odor	SB30D		
15	NA		No recovery	SB30E		
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-30
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/28/2006	Project:	Remedial Investigation Report	Page: 2 of 3
	Project #:	01869-116	Geologist: S. Olson
End Date: 3/28/2006	Coordinates:	X-648386.6 Y-895558	Depth of Boring: 40.00 feet
	Elevation:	8.20 NAVD 88	Depth to Water: 7.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	NA		Gray-brown, SILT to CLAYEY SILT, trace root material; Dry to Moist	SB30F	SB-30 (23-24)	
22						
23						
24						
25	NA			SB30G		
26						
27						
28						
29						
30						
31	NA		Light gray, VF SANDY SILT, some loose VF sand, some compacted M sand; Saturated; No Odor	SB30H	SB-30 (30-35)	
32						
33						
34						
35	NA		Brown, SILT w/ rock fragments	SB30I		
36						
37						
38			No recovery			
39						
40						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-30
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/28/2006	Project:	Remedial Investigation Report	Page: 3 of 3
	Project #:	01869-116	Geologist: S. Olson
End Date: 3/28/2006	Coordinates:	X-648386.6 Y-895558	Depth of Boring: 40.00 feet
	Elevation:	8.20 NAVD 88	Depth to Water: 7.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
			Refusal at 40 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-31
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/23/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/23/2006	Coordinates:	X-648508.4 Y-895553	Depth of Boring: 37.00 feet
	Elevation:	8.20 NAVD 88	Depth to Water: 5.5 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt			
1	4.2		Brown to dark brown, F-M SAND, little gravel to cobbles, trace silt, brick and concrete fragments; Dry; No Odor	SB31A		
2						
3						
4	3.6			SB31B	SB-31 (4-4.5)	
5	10.8		Brown, F-M SAND, trace fill material, trace F gravel; Dry to Damp; Petro-like Odor	SB31C		
6						
7	12		Dark gray and black, F-M SAND, some clay, trace F gravel; Damp to Wet; Sl. Petro-like Odor	SB31D	SB-31 (7-9)	
8						
9	10.3		Olive gray, F-M SAND, some clay, trace F gravel; Damp to Wet; No Odor	SB31E		
10						
11	16.2		Gray, SILT, some root material, trace F sand; Wet; No Odor	SB31F		
12						
13	NA		No recovery	SB31G		
14						
15	NA			SB31H		
16						
17	10.1		Dark brown, CLAY, some silt, some root materail; Wet; Mod. Organic Odor	SB31I		
18						
19	7		Dark brown, SILT, some F sand, some root material; Wet; Mod. Organic Odor	SB31J		
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-31
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/23/2006	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/23/2006	Coordinates:	X-648508.4 Y-895553	Depth of Boring: 37.00 feet
	Elevation:	8.20 NAVD 88	Depth to Water: 5.5 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	10.2		Brown, SILT, some F sand, some root material; Wet; Mod. Organic Odor	SB31K	SB-31 (21-23)	
22						
23	4.7		Brown, F-M SAND, some clay, trace F gravel; Wet; No Odor	SB31L		
24			Brown, CLAY, trace F gravel; Damp; No Odor			
25	5.1			SB31M		
26						
27	9.3			SB31N		
28						
29	9.7			SB31O		
30						
31	11.6			SB31P		
32			Brown, F SAND w/ silt; Wet to Saturated; No Odor			
33	11.1		Brown, SILT; Damp; No Odor	SB31Q		
34			Brown, F SAND w/ silt; Wet to Saturated; No Odor			
35	11.9		Brown, F-M SAND, trace silt; Wet; No Odor	SB31R	SB-31 (35-37)	
36						
37			Brown, F-M SAND, some silt; Damp; No Odor			
			Refusal at 37 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-32/MW-15
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/31/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 3/31/2006	Coordinates:	X-648297.34 Y-895576	Depth of Boring: 23.00 feet
	Elevation:	3.70 NAVD 88	Depth to Water: --- feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–4			Dark brown, F-M SAND, some silt, trace gravel, trace root material; No Odor			
4–5	NA			SB32A	SB-32 (4.5-5)	
5–7	11.3		Dark gray, F-C SAND, trace silt; Damp; No Odor	SB32B		
7–9	31.7		Dark gray and light gray, F-C SAND, some silt, trace M gravel; Wet; Oil-like Odor	SB32C		
9–11	20.4		Dark gray, F-C SAND, trace silt, trace M gravel; Wet; Sl.-Mod. Oil-like Odor	SB32D	SB-32 (9-13)	
11–12	20.9			SB32E		
12–15	15.3		Light gray, SILT and F SAND, some M gravel; Wet to Saturated; No Odor	SB32F		
15–17	300		Light gray, SILT and F SAND, some M gravel, NAPL, sheen observed	SB32G		
17–19	389		NAPL and NAPL SATURATED F-M SAND, some silt, sheen; Wet; Strong MGP-like Odor	SB32H	SB-32 (17-19)	
19–20	266			SB32I		

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-32/MW-15
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/31/2006	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 3/31/2006	Coordinates:	X-648297.34 Y-895576	Depth of Boring: 23.00 feet
	Elevation:	3.70 NAVD 88	Depth to Water: --- feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21 22 23	174		Dark gray/green, SILT, some clay, trace root fragments; Damp to Wet; Mod. MGP-like Odor	SB32J	SB-32 (20-23)	
			End of Boring at 23 ft bgs			

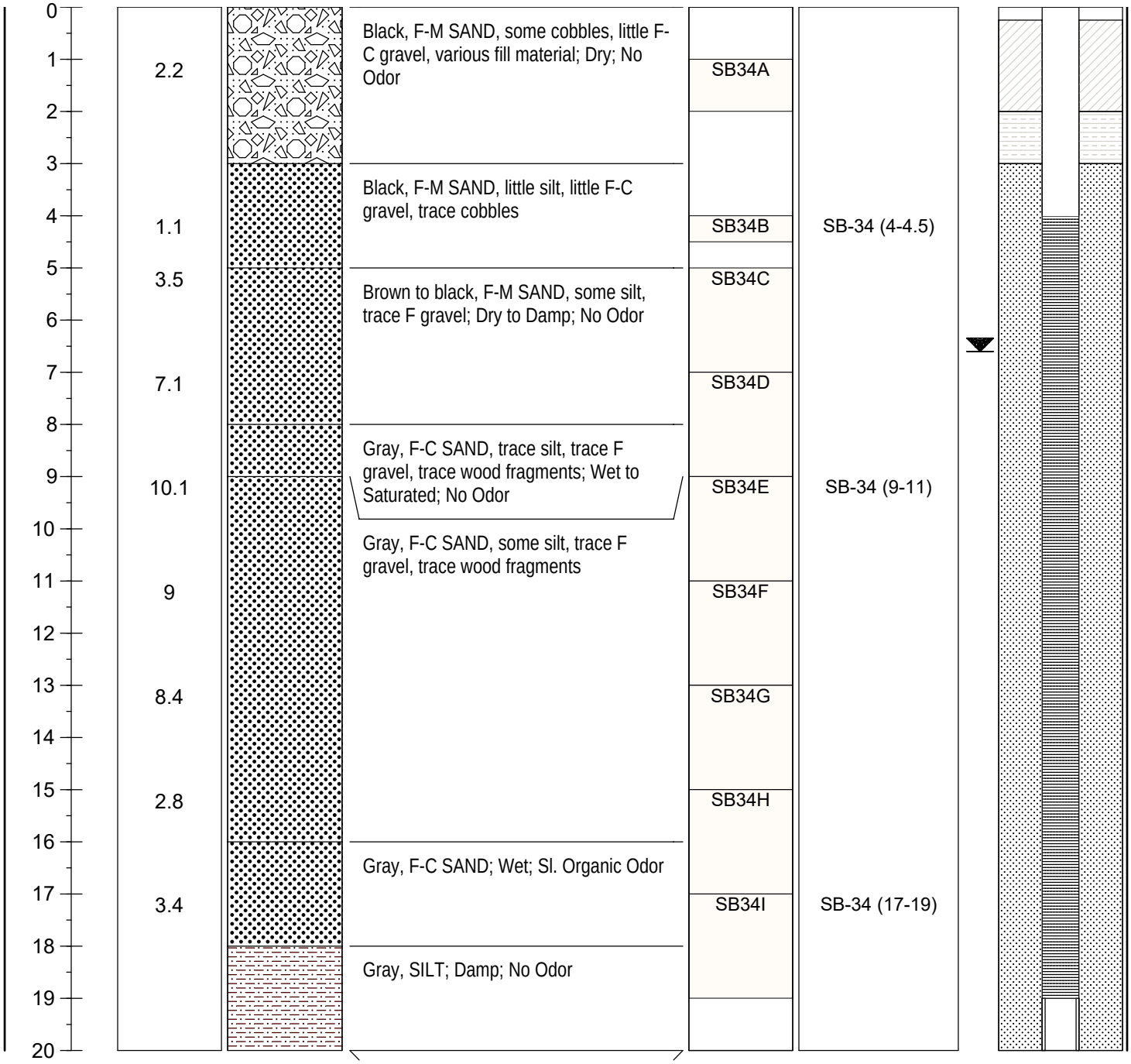
NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-33/MW-16
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/31/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 3/31/2006	Coordinates:	X-648343.45 Y-895408	Depth of Boring: 15.00 feet
	Elevation:	3.32 NAVD 88	Depth to Water: 3.28 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–3			Dark brown, F-M SAND, some silt, trace gravel, root material; Dry; No Odor			
3–5			Dark brown/gray, F-C SAND, some F-M gravel; Damp to Wet; Sl. Oil-like Odor			
5	NA		no recovery	SB33A	SB-33 (3-3.5)	
7	NA		Gray, F-C SAND, some F-M gravel, trace silt; Wet; Sl. Oil-like Odor	SB33B	SB-33 (5-9)	
9	NA		Black, F-C SAND and M-F GRAVEL, trace silt; Wet; Sl. MGP-like Odor	SB33C		
11	NA			SB33D		
13	NA		Dark gray/green, SILT, some clay; Damp to Wet; Sl-Mod.MGP-like Odor	SB33E	SB-33 (13-15)	
15			End of Boring at 15 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-34/MW-14
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/24/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/29/2006	Coordinates:	X-648476.3 Y-895451	Depth of Boring: 20.00 feet
	Elevation:	8.50 NAVD 88	Depth to Water: 6.6 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-34/MW-14
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/24/2006	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/29/2006	Coordinates:	X-648476.3 Y-895451	Depth of Boring: 20.00 feet
	Elevation:	8.50 NAVD 88	Depth to Water: 6.6 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
			End of Boring at 20 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-35
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/27/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: S. Olson
End Date: 3/27/2006	Coordinates:	X-648318.7 Y-895630	Depth of Boring: 20.00 feet
	Elevation:	6.80 NAVD 88	Depth to Water: 8.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0	1.5		Railroad ballast at grade	SB35A		
1			Black, ASH-LIKE MATERIAL; Dry; No Odor			
2						
3	0.8		Dark brown to black, F-M SAND w/ ash-like material; Dry; No Odor	SB35B	SB-35 (3-4)	
4						
5						
6	50.1		Dark brown to black, M-C SAND, little silt, trace gravel, Oil-like material observed; Strong Odor	SB35C		
7						
8						
9						
10	3.8		Layers of F-C material all NAPL saturated; Saturated; Strong Odor	SB35D		
11						
12						
13	5.9			SB35E	SB-35 (13-15)	
14						
15			Brown, SILT, laminated			
16						
17	NA		No recovery, bottom 17 inches of Geoprobe liner stained with NAPL	SB35F		
18						
19						
20						

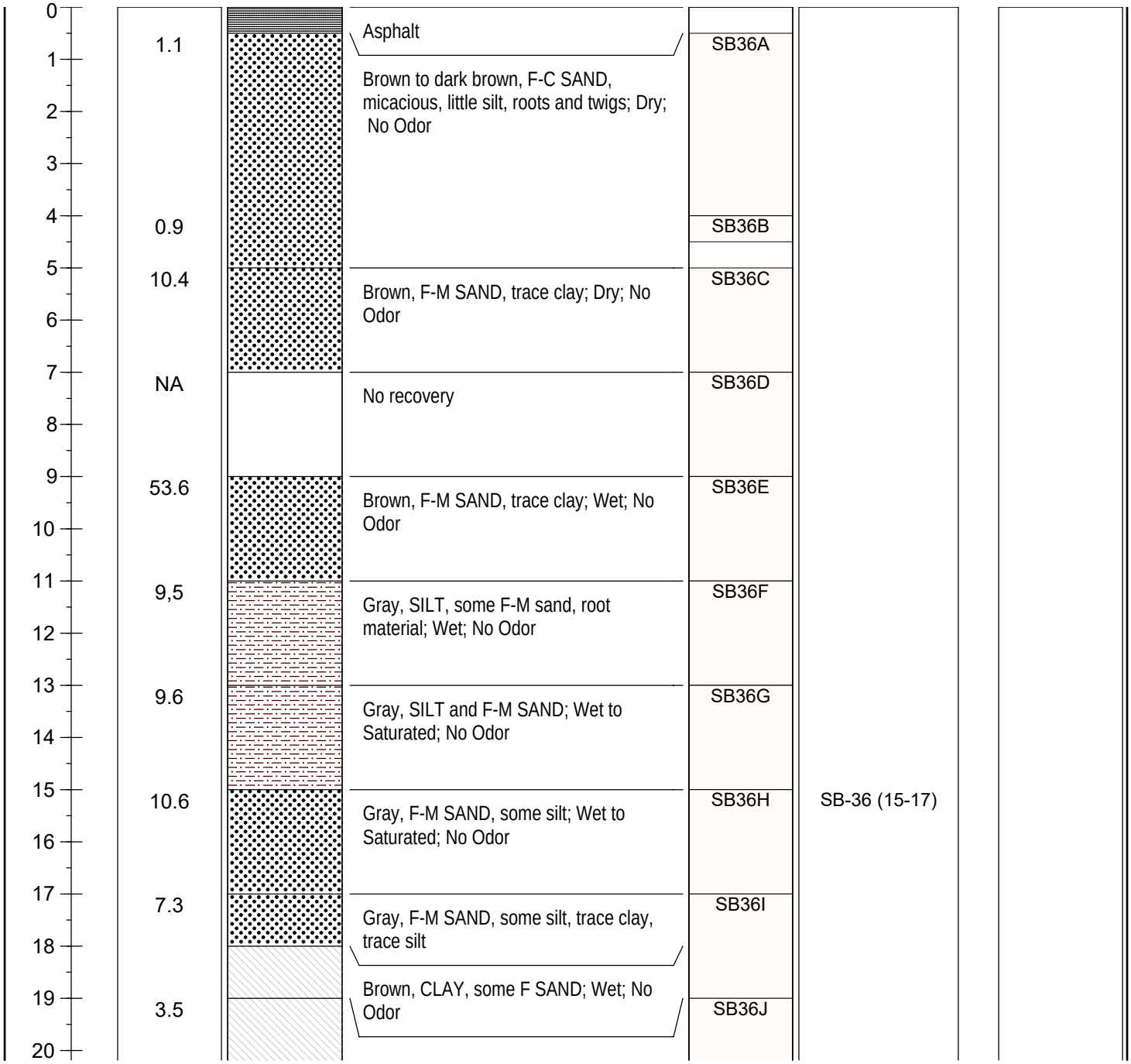
NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-35
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/27/2006	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: S. Olson
End Date: 3/27/2006	Coordinates:	X-648318.7 Y-895630	Depth of Boring: 20.00 feet
	Elevation:	6.80 NAVD 88	Depth to Water: 8.0 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Vac Ex/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
			End of Boring at 20 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-36
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/16/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/29/2006	Coordinates:	X-648522.2 Y-895461	Depth of Boring: 31.00 feet
	Elevation:	8.40 NAVD 88	Depth to Water: 6.5 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: SB-36
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/16/2006	Project: Remedial Investigation Report	Page: 2 of 2
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/29/2006	Coordinates: X-648522.2 Y-895461	Depth of Boring: 31.00 feet
	Elevation: 8.40 NAVD 88	Depth to Water: 6.5 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA	Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	4.7		Brown, CLAY, trace F SAND; Wet; No Odor	SB36K	SB-36 (25-27)	
22			Tan/brown, CLAY, some F-M sand; Wet; No Odor			
23	8.3		Tan/brown, CLAY, some F-M sand, trace silt	SB36L		
24						
25	8.6		Brown, F-M SAND, trace clay, trace F gravel; Wet; No Odor	SB36M		
26						
27	NA		No recovery, slough from augers	SB36N		
28						
29	NA			SB36O		
30						
31			End of Boring at 31 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

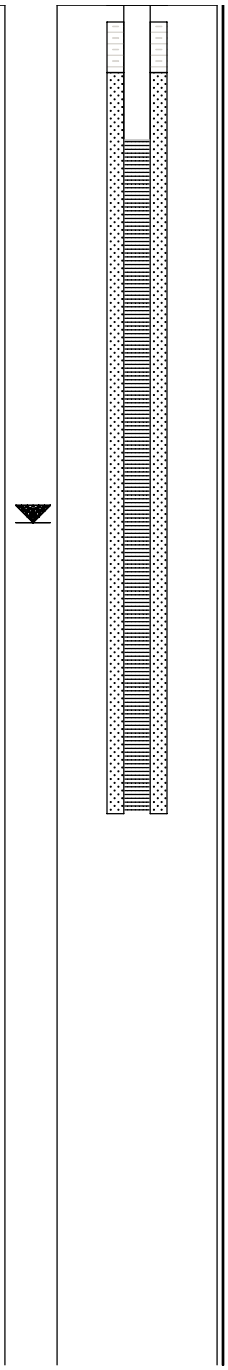
ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-37/MW-19
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 5/1/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 5/1/2006	Coordinates:	X-648354 Y-895301	Depth of Boring: 15.00 feet
	Elevation:	2.37 NAVD 88	Depth to Water: 5.51 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 6610DT	
Drill Method: Hand Auger/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Original boring log misplaced and/or destroyed - General location geology: Brown, F-C SAND; Wet at approximately 6 ft bgs			
4				SB37A	SB-37(4-5)	
14				SB37B	SB-37 (14-15)	
15			End of Boring at 15 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-38/MW-20
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 5/1/2006	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 5/1/2006	Coordinates:	X-648368.38 Y-895485	Depth of Boring: 25.00 feet
	Elevation:	4.93 NAVD 88	Depth to Water: 7.68 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 6610DT	
Drill Method: Hand Auger/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Original boring log misplaced and/or destroyed - General location geology: Brown, F-C SAND; Wet at approximately 7.5 ft bgs			
4				SB38A	SB-38 (4-5)	
10				SB38B	SB-38 (10-15)	
20						



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-38/MW-20
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 5/1/2006	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 5/1/2006	Coordinates:	X-648368.38 Y-895485	Depth of Boring: 25.00 feet
	Elevation:	4.93 NAVD 88	Depth to Water: 7.68 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 6610DT	
Drill Method: Hand Auger/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21						
22						
23						
24						
25			End of Boring at 25 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

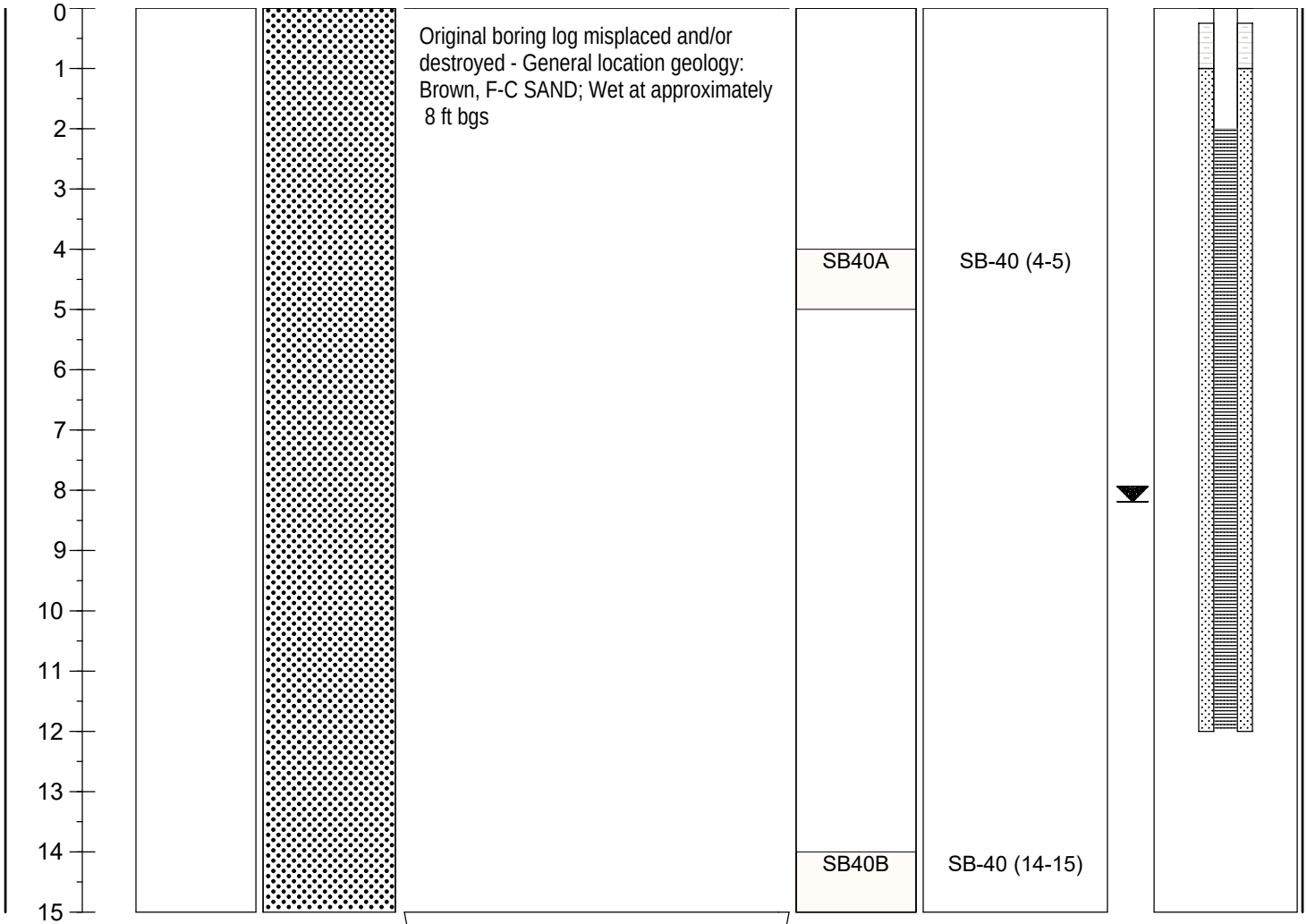
ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-39/MW-21
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 5/1/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 5/1/2006	Coordinates:	X-648407.61 Y-895426	Depth of Boring: 15.00 feet
	Elevation:	5.13 NAVD 88	Depth to Water: 7.9 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 6610DT	
Drill Method: Hand Auger/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–15			Original boring log misplaced and/or destroyed - General location geology: Brown, F-C SAND; Wet at approximately 8 ft bgs	SB39A	SB-39 (0-5)	
				SB39B	SB-39 (10-15)	
			End of Boring at 15 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-40/MW-22
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 5/1/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 5/1/2006	Coordinates:	X-648445.86 Y-895342	Depth of Boring: 15.00 feet
	Elevation:	5.50 NAVD 88	Depth to Water: 8.19 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 6610DT	
Drill Method: Hand Auger/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Original boring log misplaced and/or destroyed - General location geology: Brown, F-C SAND; Wet at approximately 8 ft bgs			
4				SB40A	SB-40 (4-5)	
14				SB40B	SB-40 (14-15)	
15			End of Boring at 15 ft bgs			



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: SB-41
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 5/18/2006	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: B.P. McCarthy
End Date: 5/18/2006	Coordinates:	X-648422.9 Y-895618.5	Depth of Boring: 11.00 feet
	Elevation:	NAVD 88	Depth to Water: --- feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55 & 54LT	
Drill Method: Hand Auger/Geoprobe		Sample Method: Hand Auger/Macrocore	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Concrete floor			
3	NA		Brown, F-M SAND, some silt, trace gravel; Dry; No Odor	SB41A	SB-41 (3-4)	
5	NA		Black/gray, F-M SAND, trace silt, trace clay; Damp; Sl. Naphth-like Odor	SB41B	SB-41 (4-8)	
8	NA		Black/gray, F-M SAND, trace silt, trace clay, some gravel, trace NAPL staining; Damp; Sl. Naphth-like Odor	SB41C	SB-41 (8-11)	
11			Black, SILT, some gravel, NAPL staining; Saturated; Strong MGP-like Odor			
			End of Boring at 11 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: MW-4
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/31/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: K. Kitchin/B.P. McCarthy
End Date: 3/21/2006	Coordinates:	X-648515.01 Y-895617	Depth of Boring: 12.50 feet
	Elevation:	7.98 NAVD 88	Depth to Water: 4.64 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0–5	1.7		Brown, F SAND, some silt, some broken gravel, brick fragments, some organics; Dry; No Odor	MW4A		
5–6	6.5		Black, F SAND, some gravel, slag, brick fragments; Wet; Sl. Odor	MW4B	MW-4 (5-5.5)	
6–7	9			MW4C		
7–9	62.2		Brown, F-M SAND, trace F gravel, trace brick fragments; Dry to Damp; Sl. Petro-like Odor	MW4D	MW-4 (7-9)	
9–11	30.6		Dark gray, SILT, some F sand, trace F gravel, NAPL; Saturated/soupy; MGP-like Odor	MW4E	MW-4 (9-11)	
11–12	NA		No recovery	MW4F		
			Refusal at 12.5 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: MW-5
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/18/2005	Project:	Remedial Investigation Report	Page: 1 of 2
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/12/2005	Coordinates:	X-648329.66 Y-895728	Depth of Boring: 23.50 feet
	Elevation:	6.06 NAVD 88	Depth to Water: 4.02 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Concrete			
1	0		Dark brown, F-M SAND, little silt, some gravel, brick fragments; Dry; thin layer of Orange/Brown NAPL; Strong Odor	MW5A	MW-5 (2-2.5)	
2						
3	5.1		Dark brown, F-M GRAVELLY SAND, broken gravel, some silt; Moist to Wet; No Odor	MW5B		
4						
5	NA			MW5C	MW-5 (5)	
	47.5		Black, M-F SILTY SAND, some coarse material; Wet; Oil-like Odor	MW5D		
6						
7	35.8		Brown to black, F-M SAND, some silt, some broken gravel, sheen; Wet; Oil-like Odor	MW5E		
8						
9	168		Gray, SILTY SAND, some broken gravel; Bottom 8-inches mixed with NAPL; sheen; Wet; Oil-like Odor	MW5F	MW-5 (9-11)	
10						
11	95.3		Grayish-brown, SILTY SAND, trace organics, slight sheen; Wet; Oil-like Odor	MW5G		
12						
13	6.8		Gray to black, SILTY CLAY, some F-C sand, trace organics; Damp to Wet; Sl. Odor	MW5H	MW-5 (13-15)	
14						
15	18			MW5I		
16						
17	NA			MW5J		
18						
19	8			MW5K		
20						

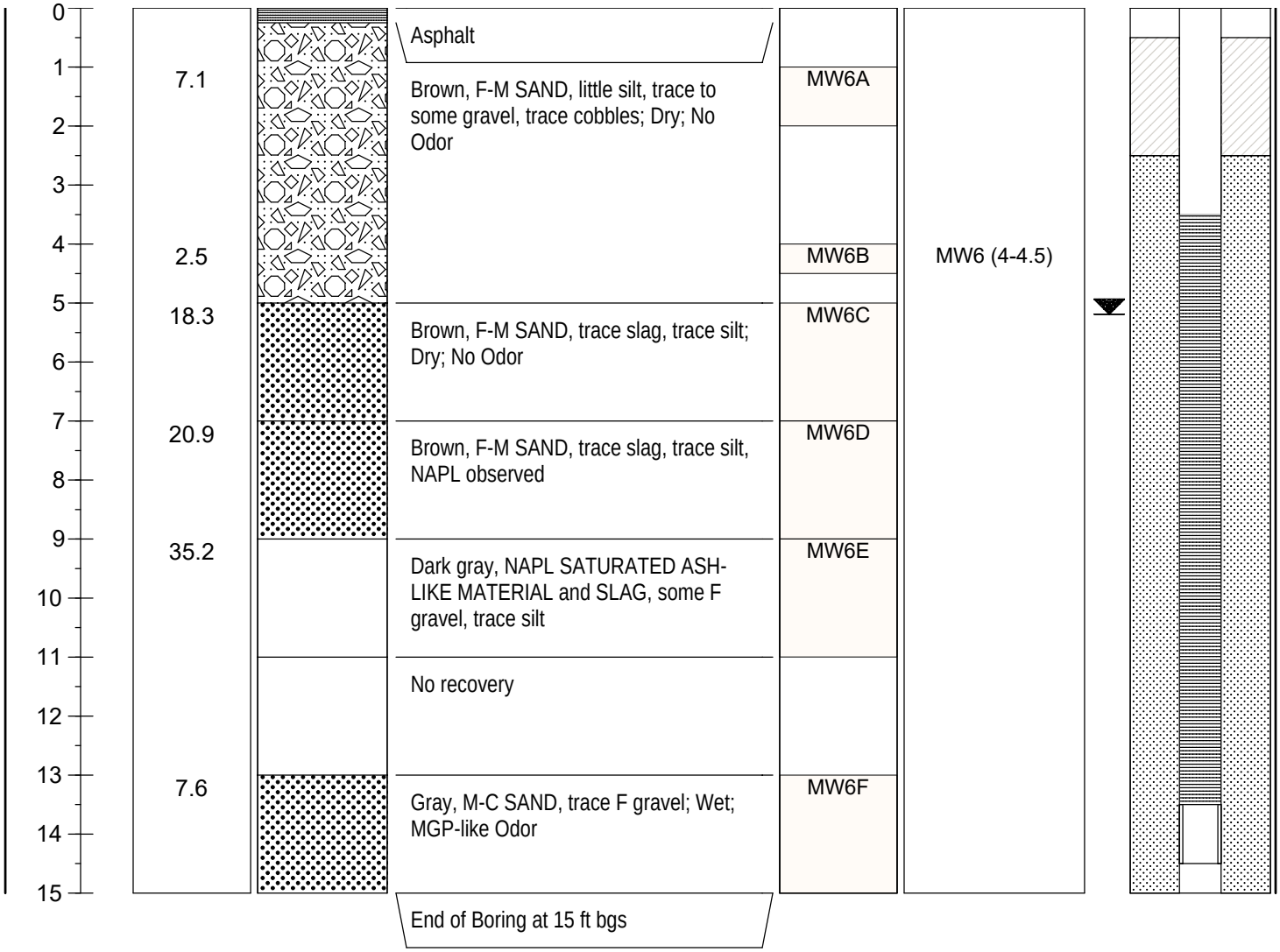
NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: MW-5
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/18/2005	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/12/2005	Coordinates:	X-648329.66 Y-895728	Depth of Boring: 23.50 feet
	Elevation:	6.06 NAVD 88	Depth to Water: 4.02 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	0		Brown, SILTY SAND, trace gravel; Wet; Sl. Odor	MW5L	MW-5 (21-23)	
22						
23			Brown, F-M SAND, some silt, trace gravel; Wet; No Odor			
			Refusal at 23.5 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: MW-6
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/14/2006	Project: Remedial Investigation Report	Page: 1 of 1
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/20/2006	Coordinates: X-648383.51 Y-895607	Depth of Boring: 15.00 feet
	Elevation: 7.39 NAVD 88	Depth to Water: 5.19 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA/Wash Rotary	Sample Method: Hand Auger/Split Spoon	



NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: MW-7
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/10/2006	Project: Remedial Investigation Report	Page: 1 of 2
	Project #: 01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/13/2006	Coordinates: X-648419.47 Y-895573	Depth of Boring: 29.00 feet
	Elevation: 7.40 NAVD 88	Depth to Water: 4.5 feet
Drill Subcontractor: ADT	Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA	Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt			
1	NA		Concrete	MW7A		
2			Brick pad			
3			Brown, F-M SAND, some gravel, trace cobbles; Dry; No Odor			
4	NA			MW7B	MW7 (4-5)	
5	0.1		Black to very dark brown, SAND	MW7C		
6			Brown, F-M SAND, some clay, brick fragments; Dry to Damp; No Odor			
7	180		Dark gray to black, F-M SAND, some clay, trace F gravel, NAPL; Wet; MGP-like Odor	MW7D		
8						
9	299		Black, F-M SAND, some clay, trace F gravel, NAPL; Wet; MGP-like Odor	MW7E	MW7 (9-11)	
10						
11	166/2.1		Black, SILT, some F sand, NAPL; Wet; MGP-like Odor	MW7F		
12						
13	3.3			MW7G	MW7 (13-15)	
14						
15	1.9			MW7H		
16						
17	1.3		Gray, M-C SAND, trace F gravel, trace silt; Wet; No Odor	MW7I		
18						
19	2.1			MW7J		
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: MW-7
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 3/10/2006	Project:	Remedial Investigation Report	Page: 2 of 2
	Project #:	01869-116	Geologist: J.T. Imhoff/B.P. McCarthy
End Date: 3/13/2006	Coordinates:	X-648419.47 Y-895573	Depth of Boring: 29.00 feet
	Elevation:	7.40 NAVD 88	Depth to Water: 4.5 feet
Drill Subcontractor: ADT		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	2.3		Gray, F-M SAND, some silt, trace C sand, sheen on groundwater; Wet; MGP-like Odor	MW7K		
22						
23	19.2		Gray, F-C SAND, some silt, trace F gravel, sheen; Wet; MGP-like Odor	MW7L		
24						
25	0.9		Brown and gray, SILT; Damp; MGP-like Odor	MW7M		
26			Brown and gray, SILT, root material; Damp; MGP-like Odor			
27	1.6			MW7N	MW7 (27-29)	
28			Brown, CLAY, trace F sand; Wet; No Odor			
29			End of Boring at 29 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: MW-8
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/31/2005	Project:	Remedial Investigation Report	Page: 1 of 3
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/9/2005	Coordinates:	X-648442.44 Y-895505	Depth of Boring: 47.5 feet
	Elevation:	8.18 NAVD 88	Depth to Water: 6.18 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Asphalt			
1			Brown to black, F SAND, some ash-like material, some silt, trace gravel; Dry; No Odor			
2	2			MW8A		
3						
4	1.1			MW8B	MW-8 (3.5-4)	
5	1.5		Brown, F-M SAND, some silt, some gravel; Dry; No Odor	MW8C		
6						
7	1.4		Brown to black, F-M SAND, trace silt, more gravel, little brick fragments; Wet; No Odor	MW8D		
8						
9	1.9		Gray, SILTY SAND, little C sand, little gravel; Wet; Sl. Odor	MW8E		
10						
11	2.7		Gray, SILTY SAND, more C sand, trace gravel; Wet; Sl. Odor	MW8F		
12						
13	1.3		Gray, M-C SAND, some silt, some broken gravel; Wet; No Odor	MW8G		
14						
15	1.4		Gray, CLAYEY SILT, little C sand; Wet; No Odor	MW8H	MW-8 (15-17)	
16						
17	1.2		Black to gray, SILTY SAND, shell fragments; Dry to Wet; No Odor	MW8I		
18						
19	6.8			MW8J		
20						

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: MW-8
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/31/2005	Project:	Remedial Investigation Report	Page: 2 of 3
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/9/2005	Coordinates:	X-648442.44 Y-895505	Depth of Boring: 47.5 feet
	Elevation:	8.18 NAVD 88	Depth to Water: 6.18 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
21	0.5			MW8K	MW-8 (21-23)	
22						
23	0		Dark gray, CLAYEY SILT, trace M sand, trace organics; Damp; No Odor	MW8L		
24						
25	0		Brown, PEAT; Moist; Organic Odor	MW8M		
26						
27	1.4		Brown, PEAT, some clay, some silt	MW8N		
28						
29	1.3		Dark brown, SILTY SAND, some clay; Wet; Sl. Organic Odor	MW8O		
30						
31	0.2		Brown, M-C SAND, some silt; Wet; No Odor	MW8P		
32						
33	NA		No recovery	MW8Q		
34						
35	0		Brownish-gray, SILTY SAND, some clay; Wet; No Odor	MW8R		
36						
37						
38						
39						
40	0			MW8S	MW-8 (40-42)	

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client: Consolidated Edison Co. of New York	BORING ID: MW-8
	Site: Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/31/2005	Project: Remedial Investigation Report	Page: 3 of 3
	Project #: 01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/9/2005	Coordinates: X-648442.44 Y-895505	Depth of Boring: 47.5 feet
	Elevation: 8.18 NAVD 88	Depth to Water: 6.18 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
41			Gray, SILT, some F sand; Wet; No Odor			
42						
43						
44						
45			No recovery			
46						
47						
			Refusal at 47.5 ft bgs - Bedrock			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

ENSR	Client:	Consolidated Edison Co. of New York	BORING ID: MW-12
	Site:	Former Pemart Ave MGP - Peekskill, NY	
Start Date: 8/31/2005	Project:	Remedial Investigation Report	Page: 1 of 1
	Project #:	01869-116	Geologist: K. Kitchin/S. Olson
End Date: 9/14/2005	Coordinates:	X-648335.78 Y-895734	Depth of Boring: 9.50 feet
	Elevation:	5.92 NAVD 88	Depth to Water: 3.68 feet
Drill Subcontractor: Soil Testing, Inc		Drill Rig Model: CME-55	
Drill Method: Vac Ex/HSA		Sample Method: Hand Auger/Split Spoon	

Depth	PID	Graphic Log	Lithologic Description	Lithologic Sample ID	Analytical Sample ID	Well Diagram
0			Concrete			
1	0		Dark brown, F-M SAND, little silt, some gravel, brick fragments; Dry; thin layer of Orange/Brown NAPL; Strong Odor	MW12A		
2						
3	5.1		Dark brown, F-M GRAVELLY SAND, broken gravel, some silt; Moist to Wet; No Odor	MW12B		
4						
5	NA 47.5		Black, M-F SILTY SAND, some coarse material; Wet; Oil-like Odor	MW12C MW12D		
6						
7	35.8		Brown to black, F-M SAND, some silt, some broken gravel, sheen; Wet; Oil-like Odor	MW12E		
8						
9			Gray, SILTY SAND, some broken gravel; Bottom 8-inches mixed with NAPL; sheen; Wet; Oil-like Odor			
			End of Boring 9.5 ft bgs			

NOTES: Depth measured in feet; PID readings measured in parts per million (ppm); and Elevation measured in NAVD 88.
Depth to Groundwater measured in feet from the Top of Casing (TOC) for wells and Ground Surface (GS) for soil borings.
MGP-like Odor = Manufactured Gas Plant Like Odor; Naphth-like Odor = Naphthalene Like Odor;
Petro-like Odor = Petroleum Like Odor; and NAPL = Non-Aqueous Phase Liquid.

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Core Log

Core ID: SD-1

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 11/28/2007 End Date: 11/28/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 8'
Total Depth (ft): 12.50'
Total Compaction: 36%

Location: Peekskill, New York

Northing: 895544.94 Easting: 648096.53

Mudline Elevation (ft): -7.60'

Depth - Deck to Mudline (ft): ~7'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 1 0 - 8'	8'	1.2		0	OL		(0-7') Dark gray to black SILT; no odor, no NAPL, no stain, no sheen
SD - 1 7 - 8.5'		5.2		5			(7-8.5') SAA with mild odor, no free NAPL, mild NAPL sheen
SD - 1 8.5 - 10.5'		0.4			MH		(8.5-10.5') Gray-green SILT to CLAYEY SILT with Sand and Gravel, somewhat stiff to stiff; no odor, no NAPL, no stain, no sheen
SD - 1 10.5 - 12.5'		0.2	SD-1 (12-12.5')	10	ML/ MH		(10.5-12.5') Brown SILT with occasional vf sand lenses (1-2mm), no odor, no NAPL, no stain, no sheen (12.5') END OF BORING

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Core Log

Core ID: SD-2

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 11/29/2007 End Date: 11/29/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 10'
Total Depth (ft): 20'
Total Compaction: 50%

Location: Peekskill, New York

Northing: 895429.25 Easting: 648114.10

Mudline Elevation (ft): -9.51'

Depth - Deck to Mudline (ft): 7.35'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 2 0 - 7'	10'	1.0		0	OL		(0-7') Brown SAND, SILT, tr organic matter; mild burnt odor, no NAPL, no stain, mild sheen whisps (2-5' bml)
				5			
SD - 2 7 - 13'		0.8	SD-2 (10-11')	10	PT/ OL		(7-14') PEAT, brown organics, mild organic odor, no NAPL, no stain, no sheen
SD - 2 13 - 15'							
SD - 2 15 - 17'		3.4	SD-2 (16.5-17')	15	OL		(14-15') Gradational change from PEAT to SILT below; no odor, no NAPL, no stain, no sheen (15-17') Brown Sandy SILT with some organics; no odor, no NAPL, no stain, no sheen
SD - 2 17 - 18'					ML		(17-18') Gray brown-gray vf SANDY SILT; no odor, no NAPL, no stain, no sheen
SD - 2 18 - 20'		0.8	SD-2 18-19')		CL		(18-20') SILT to SILTY CLAY, somewhat firm; no odor, no NAPL, no stain, no sheen (20') END OF BORING
				20			

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Core Log

Core ID: SD-3

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 11/29/2007 End Date: 11/29/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 11.5'
Total Depth (ft): 16.3'
Total Compaction: 30%

Location: Peekskill, New York

Northing: 895427.89 Easting: 648251.85

Mudline Elevation (ft): -8.00'

Depth - Deck to Mudline (ft): 5-7'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 3 0 - 4.5'	11'	1.2	SD-3 (1-3')	0	OL		(0-4.5') Brown SILT, SAND, and ORGANIC MATTER; mild odor, no NAPL, no stain, occasional sheen spots on outer core (2-4.5' bml)
SD - 3 4.5 - 7'				5			(4.5-7') SAA but gray to black in color
SD - 3 7 - 10'		285.7	SD-3 (9-10')	10			(7-10') Gray to black SILT with angular Gravel and possible slag material; strong tar odor, NAPL saturated (8-10' bml)
SD - 3 10 - 16'		35.2	SD-3 (14-16')	15	OH/ OL		(10-16') Gray-brown SILT with occasional organic/root matter; no odor, no NAPL, no stain
SD - 3 16 - 16.3'		4.5	SD-3 (16-16.3')		PT		(16-16.3') Brown fibrous PEAT; organic odor, no NAPL, no stain (16.3') END OF BORING

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Core Log

Core ID: SD-4

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 11/29/2007 End Date: 11/29/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 11'
Total Depth (ft): 15.3'
Total Compaction: 27%

Location: Peekskill, New York

Northing: 895300.88 Easting: 648261.61

Mudline Elevation (ft): -8.84'

Depth - Deck to Mudline (ft): 8.50'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 4 0 - 3'	11'	2.8	SD-4 (0.5-2')	0	OL		(0-3') Black SILT, SAND, and ORGANIC MATTER; mild burnt or fuel-like odor, no NAPL, no stain, no sheen
SD - 4 3 - 7.5'		1.0	SD-4 (6-7')	5	ML/ MH		(3-7.5') Dark gray SILT to SILTY CLAY; no odor, no NAPL, no stain, no sheen
SD - 4 7.5 - 12.5'		0.9		10			(7.5-12.5') Gradational change to SANDY SILT; no odor, no NAPL, no stain, no sheen
SD - 4 12.5 - 14.5'			SD-4 (14-15')				(12.5-14.5') SILT to SILTY CLAY; no odor, no NAPL, no stain, no sheen
SD - 4 14.5 - 15.3'		2.3		15	PT		(14.5-15.3') Brown fibrous PEAT, no odor, no NAPL, no stain, no sheen (15.3') END OF BORING

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Core Log

Core ID: SD-5

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 11/30/2007 End Date: 11/30/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 11.3'
Total Depth (ft): 17.5'
Total Compaction: 35%

Location: Peekskill, New York

Northing: 895320.18 Easting: 648125.98

Mudline Elevation (ft): -10.54'

Depth - Deck to Mudline (ft): 8.20'

Logged by: J. Shackford, G. Kirkwood

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 5 0 - 7.5'			SD-5 (0.5-2')	0	OL		(0-7.5') Dark gray to black SILT; slight organic odor, no NAPL, no stain, no sheen
SD - 5 7.5 - 16.5'	11.3'	NM	SD-5 (16-17')	5 10 15	ML/ MH		(7.5-16.5') Gray SILT with vf sand lenses (1-2 mm) at 16' bml, stiff; no odor, no NAPL, no stain, no sheen
SD - 5 16.5 - 17.5'					PT		(16.5-17.5') Gray SILT, stiff, with PEAT; no odor, no NAPL, no stain, no sheen (17.5') END OF BORING

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Core ID: SD-6

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 11/30/2007 End Date: 11/30/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 8'
Total Depth (ft): 20'
Total Compaction: 60%

Location: Peekskill, New York

Northing: 895421.95 Easting: 648182.31

Mudline Elevation (ft): -9.65'

Depth - Deck to Mudline (ft): 7.75'

Logged by: J. Shackford, G. Kirkwood

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 6 0 - 5'	8'	0.4		0	OL		(0-5') Dark gray to black SILT; no odor, no NAPL, no stain, no sheen
SD - 6 5 - 17'		0.4	SD-6 (16-17')	5 10 15	ML/ MH		(5-17') Gray SILT, stiff; no odor, no NAPL, no stain, no sheen
SD - 6 17 - 20'		0.5		20	SW		(17-20') Dark gray m-f SAND and GRAVEL; no odor, no NAPL, no stain, no sheen (20') END OF BORING

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Core Log

Core ID: SD-7

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/03/2007 End Date: 12/03/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 9.25'
Total Depth (ft): 37'
Total Compaction: 49%

Location: Peekskill, New York

Northing: 895420.71 Easting: 648189.04

Mudline Elevation (ft): -9.70'

Depth - Deck to Mudline (ft): ~7'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 7 0 - 19'				0 5 10 15			(0-19') Drove casing to 19' bml; vibracore 19-37' bml
SD - 7 19 - 21'			SD-7 (19-21')	20	PT		(19-21') Brown fibrous PEAT, tr gravel; no odor, no NAPL, no stain, no sheen
SD - 7 21 - 31'	9.25'	NM		25 30			(21-31') Brown fibrous PEAT; organic odor, no NAPL, no stain, no sheen
SD - 7 31 - 37'				35			(31-37') Brown SILTY fibrous PEAT; organic odor, no NAPL, no stain, no sheen (37') END OF BORING

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Core Log

Core ID: SD-8

Project: Pemart Avenue Works Former MGP & EGP	Contractor: Atlantic Testing Laboratories Inc.	Location: Peekskill, New York
Project #: 01869-126-240	Operator: Timothy Lago	Northing: 895549.96 Easting: 648058.62
Client: Consolidated Edison Co. of New York, Inc.	Method: Vibracore	Mudline Elevation (ft): -9.60'
Start Date: 12/04/2007 End Date: 12/04/2007	Inner: Flexible Liner	Depth - Deck to Mudline (ft): 7'
	Total Recovery (ft): 14.7' Total Depth (ft): 15.2' Total Compaction: 6%	Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 8 0 - 4'				0	OL		(0-3.5') Dark gray-black SILT, some organic matter; no odor, no NAPL, no stain, no sheen
							(3.5-4') SAA with mild odor, few NAPL globules, no stain, no sheen
SD - 8 4 - 5'					CL		(4-5') Gray SILTY CLAY, firm; no odor, no NAPL, no stain, no sheen
SD - 8 5- 15.2'	14.7'	NM		5	CL/ MH		(5-9') Brown CLAYEY SILT, somewhat firm to firm; no odor, no NAPL, no stain, no sheen
				10			(9-15.2') SAA with few f Sand lenses, somewhat firm to firm; no odor, no NAPL, no stain, no sheen
				15			(15.2') END OF BORING

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Core Log

Core ID: SD-9

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/05/2007 End Date: 12/05/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 11'
Total Depth (ft): 21.5'
Total Compaction: 47%

Location: Peekskill, New York

Northing: 895502.06 Easting: 648222.28

Mudline Elevation (ft): -5.15'

Depth - Deck to Mudline (ft): 3-5'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 9 0 - 2		2.4		0	SP		(0-2') Firm bottom at mudline, GRAVELLY SAND with rocks and timbers, tight; no odor, no NAPL, no stain, no sheen
SD - 9 2 - 3.5'		60.2	SD-9 (2-4')		OL		(2-3.5') Dark brown-black SILT, wood fragments; tar-like odor, NAPL globules, no stain, no sheen (3.5') Casing set at 3.5' bml
SD - 9 3.5 - 10.5'	11'	1.5	SD-9 (5-7')	5	ML/ MH		(3.5-10.5') Brown-gray SILT, little vf sand, few coal fragments, soft to slightly stiff; no odor, no NAPL, no stain, no sheen
SD - 9 10.5 - 15'		1.6		10	ML		(10.5-14.5') SAA with more SAND, slightly firmer; no odor, no NAPL, no stain, no sheen
SD - 9 15 - 19.5'		1.8		15	ML/ MH		(14.5-19.5') SAA with less SAND, slightly softer; no odor, no NAPL, no stain, no sheen
SD - 9 19.5 - 20.5'		3.8		20	SP		(19.5-20.5') Gray m SAND; no odor, no NAPL, no stain, no sheen
SD - 9 20.5 - 21.5'		2.4			PT		(20.5-21.5') Brown fibrous PEAT; no odor, no NAPL, no stain, no sheen (21.5') END OF BORING

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Core Log

Core ID: SD-10

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/05/2007 End Date: 12/05/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 9'
Total Depth (ft): 20'
Total Compaction: 55%

Location: Peekskill, New York

Northing: 895590.76 Easting: 648176.80

Mudline Elevation (ft): -5.93'

Depth - Deck to Mudline (ft): 3'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 10 0 - 2.5'	9'			0	OL		(0-2.5') Dark brown SILT, SAND, and GRAVEL, soft; mild tar odor, no NAPL, no stain, no sheen
SD - 10 2.5 - 3'		79.8	SD-10 (2-3')				(2.5-3') Dark brown SAND; tar odor, 4" of NAPL, no stain, no sheen
SD - 10 3 - 5'		1.0					(3-5') Brown SILT, tr root matter; no odor, no NAPL, no stain, no sheen
SD - 10 5 - 8'		2.3		5	PT		(5-8') Brown fibrous PEAT; organic odor, no NAPL, no stain, no sheen
SD - 10 8 - 9.5'					ML		(8-9.5') Brown SILT grading to gray-brown SANDY SILT at 9.5'; no odor, no NAPL, no stain, no sheen
SD - 10 9.5 - 11.5'				10			(9.5-11.5') Gray-brown SANDY SILT grading to gray SANDY SILT at 11.5'; no odor, no NAPL, no stain, no sheen
SD - 10 11.5 - 16'		0.8					(11.5-16') Gray SANDY SILT, loose, firm at depth; no odor, no NAPL, no stain, no sheen
				15	MH		
SD - 10 16 - 20'		0.1			CL		(16-20') Gray CLAY, somewhat stiff to stiff; no odor, no NAPL, no stain, no sheen
				20	CH		(20') END OF BORING

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Core Log

Core ID: SD-11

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/05/2007 End Date: 12/05/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 10'
Total Depth (ft): 20'
Total Compaction: 50%

Location: Peekskill, New York

Northing: 895506.75 Easting: 648138.45

Mudline Elevation (ft): -9.74'

Depth - Deck to Mudline (ft): 6.4'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 11 0 - 2.5'	10'	2.6		0	OL		(0-2.5') Black SILT, SAND, GRAVEL, Organic matter; mild tar-like odor, no NAPL, no stain, no sheen
SD - 11 2.5 - 12'		7.7	SD-11 (6-8')	5			(2.5-12') Black SILT with root matter, soft to slightly stiff; mild tar-like odor, no NAPL, no stain, no sheen
		8.3		10	OL/ ML		
SD - 11 12 - 19'		11.7	SD-11 (16-17')	15	SP		(12-17.5') Gray f-m SAND, tr c Sand, no odor, no NAPL, no stain, no sheen
							(17.5-19') SAA with tar odor, 4" thick tar zone within sand from 17.5 to 17.8' bml, no stain, no sheen
SD - 11 19 - 20'		2.8	SD-11 (19-20')	20	CL/ CH		(19-20') Gray-greenish-blue SILTY CLAY; no odor, no NAPL, no stain, no sheen (20') END OF BORING

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Core Log

Core ID: SD-12

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/05/2007 End Date: 12/05/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 18'
Total Depth (ft): 20'
Total Compaction: 10%

Location: Peekskill, New York

Northing: 895490.30 Easting: 648061.22

Mudline Elevation (ft): -10.12'

Depth - Deck to Mudline (ft): 8.5'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 12 0 - 4'	18'	0.8	SD-12 (2-4')	0	OL		(0-4') Black SILT with root matter; no odor, no NAPL, no stain, no sheen
SD - 12 4 - 6.5'			SD-12 (4-6')	5	CL		(4-6.5') Gray SILTY CLAY with vf (mm) Sand lenses; no odor, no NAPL, no stain, no sheen
SD - 12 6.5 - 15'		0.1 0.2		10 15	CH		(6.5-15') Brown SILTY CLAY, stiff/fat; no odor, no NAPL, no stain, no sheen
SD - 12 15 - 17.5'					CL		(15-17.5') Brown CLAYEY SILT to SILTY CLAY, soft to somewhat stiff; no odor, no NAPL, no stain, no sheen
SD - 12 17.5 - 20'		0.1		20	CH		(17.5-20') Gray CLAYEY SILT to SILTY CLAY, stiff; no odor, no NAPL, no stain, no sheen (20') END OF BORING

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Core Log

Core ID: SD-13

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/06/2007 End Date: 12/06/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 9.5'
Total Depth (ft): 18'
Total Compaction: 35%

Location: Peekskill, New York

Northing: 895581.50 Easting: 648228.91

Mudline Elevation (ft): -4.28'

Depth - Deck to Mudline (ft): 4'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 13 0 - 3.5	9.5'			0	GM/ SW		(0-2') Gray SAND/GRAVEL; no odor, no NAPL, no stain, no sheen
							(2-3.5') Brown SILT; no odor, few NAPL globules, no stain, no sheen (3.5') Casing set at 3.5' bml
SD - 13 3.5 - 9'		0.7	SD-13 (5-7')	5	OL		(3.5-9') Brown SILT with root material; no odor, no NAPL, no stain, no sheen
SD - 13 9 - 13.5'		0.5	SD-13 (11-13')	10	SP		(9-13.5') Gray f-m SAND, little Gravel at 13-13.5' bml; no odor, no NAPL, no stain, no sheen
SD - 13 13.5 - 18'		0.5	SD-13 (15-17')	15	PT		(13.5-18') Brown fibrous PEAT, dry; no odor, no NAPL, no stain, no sheen (18') END OF BORING

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Core Log

Core ID: SD-14

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/06/2007 End Date: 12/06/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 14'
Total Depth (ft): 20'
Total Compaction: 30%

Location: Peekskill, New York

Northing: 895637.14 Easting: 648186.80

Mudline Elevation (ft): -6.73'

Depth - Deck to Mudline (ft): 4.6'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 14 0 - 4'	14'	81.3	SD-14 (0.5-4')	0	OL		(0-4') Black SAND, SILT, ORGANIC MATTER; no odor, no NAPL, no stain, no sheen
SD - 14 4 - 5'							(4-5') SAA with strong tar odor, NAPL
SD - 14 5 - 9.5'		3.3	SD-14 (6-8')	5			(5-9.5') Brown SILT with roots, soft to slightly stiff; no odor, no NAPL, no stain, no sheen; outer core smeared with NAPL from above, inner core not impacted
SD - 14 9.5 - 11				10			(9.5-11') Brown to gray-brown SANDY SILT, loose, soupy; no odor, no NAPL, no stain, no sheen
SD - 14 11 - 17'		66.8		15	SP		(11-17') Gray f-m SAND, loose, more firm with some gravel starting at 14.5' bml; no odor, no NAPL, no stain, no sheen
SD - 14 17 - 20'		16.2		20	CH		(17-20') Brown to gray-brown SILTY CLAY, stiff; no odor, no NAPL, no stain, no sheen (20') END OF BORING

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Core Log

Core ID: SD-15

Project: Pemart Avenue Works Former MGP & EGP	Contractor: Atlantic Testing Laboratories Inc.	Location: Peekskill, New York
Project #: 01869-126-240	Operator: Timothy Lago	Northing: 895677.65 Easting: 648129.06
Client: Consolidated Edison Co. of New York, Inc.	Method: Vibracore Inner: Flexible Liner	Mudline Elevation (ft): -7.16'
Start Date: 12/06/2007 End Date: 12/06/2007	Total Recovery (ft): 17.5' Total Depth (ft): 18.5' Total Compaction: 5%	Depth - Deck to Mudline (ft): 5.4' Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 15 0 - 2'	17.5'	2.3	SD-15 (0.5-2')	0	CH		(0-2') Black SILT, SAND, GRAVEL, and brown SILT with root matter; no odor, no NAPL, no stain, no sheen
SD - 15 2 - 4'		1.1					(2-4') Gray CLAY, fat; no odor, no NAPL, no stain, no sheen
SD - 15 4 - 18.5'			SD-15 (4-5')	5	CL		(4-8.5') Brown SILTY CLAY, stiff, laminated; no odor, no NAPL, no stain, no sheen
			SD-15 (6-7')				
				10			(8.5-11.5') SAA with occasional f (mm) Sand lenses and soft zones; no odor, no NAPL, no stain, no sheen
		0.2			CH		(11.5-18.5') Brown SILTY CLAY, stiff, laminated; no odor, no NAPL, no stain, no sheen
				15			(18.5') END OF BORING

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Core Log

Core ID: SD-16

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/06/2007 End Date: 12/06/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 20'
Total Depth (ft): 20'
Total Compaction: 0%

Location: Peekskill, New York

Northing: 895573.84 Easting: 648110.72

Mudline Elevation (ft): -8.89'

Depth - Deck to Mudline (ft): 6.5'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 16 0 - 1.5'	20'	4.4	SD-16 (0.5-2')	0	OL		(0-1.5') Black SILT, SAND, WOOD, GRAVEL; mild tar odor, few NAPL sheen spots (0.5-2' bml), no stain
SD -16 1.5 - 2.5'							(1.5-2.5') Brown SILT with roots; no odor, no NAPL, no stain, no sheen
SD - 16 2.5 - 6'			SD-16 (4-5')	5	CH		(2.5-6') Gray CLAY, stiff; no odor, no NAPL, no stain, no sheen
SD - 16 6 - 20'		1.4					(6-9') Brown SILTY CLAY, stiff; no odor, no NAPL, no stain, no sheen
		6.7		10			(9-20') SAA with occasional f Sand lenses; no odor, no NAPL, no stain, no sheen
		12.8		15			
				20			(20') END OF BORING

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Core Log

Core ID: SD-17

Project: Pemart Avenue Works Former MGP & EGP	Contractor: Atlantic Testing Laboratories Inc.	Location: Peekskill, New York
Project #: 01869-126-240	Operator: Timothy Lago	Northing: 895619.49 Easting: 648082.52
Client: Consolidated Edison Co. of New York, Inc.	Method: Vibracore Inner: Flexible Liner	Mudline Elevation (ft): -8.25'
Start Date: 12/06/2007 End Date: 12/06/2007	Total Recovery (ft): 20' Total Depth (ft): 20' Total Compaction: 0%	Depth - Deck to Mudline (ft): 4.7' Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 17 0 - 1.5'	20'	0.5	SD-17 (0.5-2')	0	OL		(0-1.5') Black SILT and ORGANIC MATTER; no odor, no NAPL, no stain, no sheen
SD - 17 1.5 - 2.5'							(1.5-2.5') Brown SILT with root matter; no odor, no NAPL, no stain, no sheen
SD - 17 2.5 - 5'		0.4	SD-17 (4-5') ENV + PHYS		CH		(2.5-5') Gray CLAY, fat; no odor, no NAPL, no stain, no sheen
SD - 17 5 - 20'		2.2		5			(5-20') Brown SILTY CLAY, stiff; no odor, no NAPL, no stain, no sheen
		0.9	SD-17 (12-14') PHYS	10	CL/ CH		
		0.6		15	CH		
				20			(20') END OF BORING

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Core Log

Core ID: SD-18

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/07/2007 End Date: 12/07/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 15'
Total Depth (ft): 20'
Total Compaction: 25%

Location: Peekskill, New York

Northing: 895543.31 Easting: 648019.43

Mudline Elevation (ft): -10.15'

Depth - Deck to Mudline (ft): 9.4'

Logged by: J. Shackford, G. Kirkwood

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 18 0 - 5'	15'	1.0	SD-18 (0.5-2') ENV + PHYS	0	OL		(0-5') Dark gray SILT; no odor, no NAPL, no stain, no sheen
SD - 18 5 - 6'		0.9	SD-18 (5-6')	5	CH		(5-6') Gray CLAY and SILT, stiff; no odor, no NAPL, no stain, no sheen
SD - 18 6 - 20'		0.5			CL/ CH		(6-20') Brown-gray SILTY CLAY with vf Sand lenses, moderately stiff; no odor, no NAPL, no stain, no sheen
		0.7		10	CH		
		0.6		15			
		0.7		20			(20') END OF BORING

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Core Log

Core ID: SD-19

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/07/2007 End Date: 12/07/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 18'
Total Depth (ft): 20'
Total Compaction: 10%

Location: Peekskill, New York

Northing: 895490.96 Easting: 648019.56

Mudline Elevation (ft): -10.27'

Depth - Deck to Mudline (ft): 9.4'

Logged by: J. Shackford, G. Kirkwood

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 19 0 - 6'	18'	0.8 1.2 1.9		0 5	OL		(0-6') Dark gray SILT; no odor, no NAPL, no stain, no sheen
SD - 19 6 - 8'		1.1	SD-19 (6-8')		CH		(6-8') Gray SILT and CLAY, stiff; no odor, no NAPL, no stain, no sheen
SD - 19 8 - 20'		1.9 2.1		10 15 20	CL CH		(8-20') Brown-gray SILTY CLAY with vf Sand lenses throughout; no odor, no NAPL, no stain, no sheen (20') END OF BORING

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Core Log

Core ID: SD-20

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/12/2007 End Date: 12/12/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 12'
Total Depth (ft): 20'
Total Compaction: 40%

Location: Peekskill, New York

Northing: 895541.29 Easting: 648162.08

Mudline Elevation (ft): -7.62'

Depth - Deck to Mudline (ft): 6.6'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 20 0 - 4')	12'	5.1		0	NA		(0-4') Drove split spoon through wood with black SILT coating; no odor, no NAPL, no stain, no sheen (4') Casing set at 4' bml
SD - 20 4 - 10'		50.1		5	OL		(4-8') Black SILT, SAND, and ORGANIC MATTER; mild odor, no NAPL, no stain, no sheen (8-10') DETRITUS with tar odor, coal fragments, clinker, some tar globules, sheen
SD - 20 10 - 11.5'		7.6		10	CH		(10-11.5') Greenish gray SILTY CLAY, stiff; no odor, no NAPL, no stain, no sheen
SD - 20 11.5 - 20'		11.9			CL/ CH		(11.5-13.5') Brown SILT to CLAY; no odor, no NAPL, no stain, no sheen (13.5-20') SAA with occasional m-c SAND lenses (0.25-1" thick) and occasional tan CLAY layers, fat; no odor, no NAPL, no stain, no sheen
				15			
					CH		(20') END OF BORING
				20			

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Core Log

Core ID: SD-21

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/10/2007 End Date: 12/10/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 20'
Total Depth (ft): 20'
Total Compaction: 0%

Location: Peekskill, New York

Northing: 895605.52 Easting: 648119.63

Mudline Elevation (ft): -6.78'

Depth - Deck to Mudline (ft): 5.6'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 21 0 - 2.5'	20'	54.9	SD-21 (0.5-2')	0	OL		(0-2.5') Black SILT and ORGANIC MATTER, Wood; strong tar odor, partially tar saturated (1-2.5' bml)
SD - 21 2.5 - 3.5'							(2.5-3.5') Brown SILT with root matter; no odor, no NAPL, no stain, no sheen
SD - 21 3.5 - 5'		1.5	SD-21 (4-5')		CL/ CH		(3.5-5') Gray SILT and CLAY, stiff; no odor, no NAPL, no stain, no sheen
SD - 21 5 - 9.5'				5			(5-9.5') Brown CLAY, stiff; no odor, no NAPL, no stain, no sheen
SD - 21 9.5 - 12'				10			(9.5-12') SAA with occasional thin (mm to 0.25") f Sand lenses; no odor, no NAPL, no stain, no sheen
SD - 21 12-20'				15	CH		(12-20') Brown CLAY with thin (1-4") zones of fat gray Clay; no odor, no NAPL, no stain, no sheen
				20			(20') END OF BORING

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Core Log

Core ID: SD-22

Project: Pemart Avenue Works Former MGP & EGP	Contractor: Atlantic Testing Laboratories Inc.	Location: Peekskill, New York
Project #: 01869-126-240	Operator: Timothy Lago	Northing: 895362.31 Easting: 648225.39
Client: Consolidated Edison Co. of New York, Inc.	Method: Vibracore Inner: Flexible Liner	Mudline Elevation (ft): -7.56'
Start Date: 12/11/2007 End Date: 12/11/2007	Total Recovery (ft): 9.5' Total Depth (ft): 20' Total Compaction: 52%	Depth - Deck to Mudline (ft): 7' Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 22 0 - 5'	9.5'	1.8 0.0		0	OL		(0-5') Gray-brown SILT and ORGANIC MATTER, tr gravel; mild tar odor, no NAPL, no stain, few sheen spots (0.5-2' bml)
SD - 22 5 - 10.5'			SD-22 (7-9') ENV + PHYS	5			(5-10.5') Gray-brown SILT with root matter, somewhat stiff; no odor, no NAPL, no stain, no sheen
SD - 22 10.5 - 11'				10	GM	⊠ ⊠	(10.5-11') Gray c SAND and GRAVEL; no odor, no NAPL, no stain, no sheen
SD - 22 11 - 20'		4.1	SD-22 (13-15') ENV + PHYS	15	PT		(11-20') Brown fibrous PEAT; mild organic odor, no NAPL, no stain, no sheen
				20			(20') END OF BORING

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Core Log

Core ID: SD-23

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/11/2007 End Date: 12/11/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: HSA
Inner: 2" ID Split Spoon

Recovery: Moderate
Total Depth (ft): 34'

Location: Peekskill, New York

Northing: 895365.31 Easting: 648225.42

Mudline Elevation (ft): -7.56'

Depth - Deck to Mudline (ft): 6-7'

Logged by: S. Olson, J. Shackford

SAMPLE					Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	Blow Counts	PID (ppm)	Lab Sample ID				
SD - 23 0 - 3'			3.7		0	OL		(0-3') Brown to black SAND and SILT, loose; mild tar odor, no NAPL, no stain, few sheen spots (1-3' bml)
SD - 23 3 - 5'	2'/2'	WOR	0.3	SD-23 (3-5') ENV + PHYS				(3-5') Dark gray-brown SILT and ORGANIC MATTER, soft; no odor, no NAPL, no stain, no sheen
SD - 23 5 - 7'	1'/2'	WOR	NM	SD-23 (5-7) BULK DENSITY	5			(5-7') Gray-brown SILT, soft to medium soft; no odor, no NAPL, no stain, no sheen
SD - 23 7 - 9'	1'/2'	Shelby	2.5					(7-11') Gray-brown SILT with root matter, somewhat firm; no odor, no NAPL, no stain, no sheen
SD - 23 9 - 11'	0.83'/2'	WOR	2.9		10			
SD - 23 11 - 13'	0.5'/2'	WOH, 3 2, 1 n = 5	3.2			PT		(11-13') Brown fibrous PEAT, dry; slight organic odor, no NAPL, no stain, no sheen
SD - 23 13 - 15'	1.5'/2'	2, 1 1, 1 n = 2	2.3			OL/ PT		(13-15') Gray SILT and PEAT; organic odor, no NAPL, no stain, no sheen
					15			(15-20') No Recovery - SPT (20') Casing set at 20' bml
SD - 23 20 - 22'	2'/2'	WOH	2.1		20			(20-22') Gray SILT to CLAYEY SILT with PEAT; organic odor, no NAPL, no stain, no sheen
								(22-25') No Recovery - SPT (25') Casing set at 25' bml
SD - 23 25 - 27'	2'/2'	WOH	2.9	SD-23 (25-27') PHYS	25	OL/OH PT		(25-27') Gray CLAYEY SILT to CLAY with PEAT, somewhat stiff; organic odor, no NAPL, no stain, no sheen
								(27-28') No Recovery
SD - 23 28 - 30'	0'/2'	Shelby	NM					(28-30') Shelby Tube
SD - 23 30 - 32'	2'/2'	WOH	1.2		30			(30-32') SAA with less PEAT, stiff; no odor, no NAPL, no stain, no sheen
SD - 23 32 - 34'	0'/2'	Shelby	NM					(32-34') Shelby Tube (34') END OF BORING

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Core Log

Core ID: SD-24

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/12/2007 End Date: 12/12/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: HSA
Inner: 2" ID Split Spoon

Recovery: Moderate to good
Total Depth (ft): 24'

Location: Peekskill, New York

Northing: 895504.91 Easting: 648137.44

Mudline Elevation (ft): -8.53'

Depth - Deck to Mudline (ft): 8'

Logged by: S. Olson, J. Shackford

SAMPLE					Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	Blow Counts	PID (ppm)	Lab Sample ID				
SD - 24 0 - 2'	0.33'/2'	WOR	3.7		0	OL		(0-4') Gray-black SILT and ORGANIC MATTER; no odor, no NAPL, no stain, no sheen
SD - 24 2 - 4'	0.33'/2'	WOR	3.5					
SD - 24 4 - 6'	1.67'/2'	WOR	1.2		5			(4-9') Gray-black SILT and ORGANIC MATTER, soft; mild tar odor, few thin (mm-cm) lenses of tar globules, small amount of tar globules and sheen (8-9' bml)
SD - 24 6 - 8'	1.67'/2'	WOR	1.8	SD-24 (6-8') PHYS				
SD - 24 8 - 10'	1.5'/2'	3, 3, 3, 3 n = 6	12.9	SD-24 (8-10') ENV + PHYS		SP		(9-12') Gray f-m SAND, some c SAND, tr f gravel, somewhat firm; no odor, no NAPL, no stain, no sheen
SD - 24 10 - 12'	2'/2'	3, 3, 2, 3 n = 5	22.3		10			
SD - 24 12 - 14'	1.5'/2'	6, 3, 3, 4 n = 6	2.3			SP/ SM		(12-16') SAA with little Silt; no odor, no NAPL, no stain, no sheen
SD - 24 14 - 16'	1.67'/2'	6, 3, 6, 4 n = 9	3.0		15			
SD - 24 16 - 18'	1.33'/2'	3, 3, 6, 6 n = 9	2.7			SP		(16-17') Gray m-c SAND, f GRAVEL, loose; no odor, no NAPL, no stain, no sheen
			3.9					(17-20') Green-gray CLAY, stiff; no odor, no NAPL, no stain, no sheen
SD - 24 18 - 20'	1.67'/2'	3, 4 5, 4 n = 9	2.2			CL/ CH		
SD - 24 20 - 22'	2'/2'	3, 3, 3, 5 n = 6	2.1		20			(20-22') Brown SILTY CLAY to CLAY with occasional thin Sand and tan Clay lenses; no odor, no NAPL, no stain, no sheen
SD - 24 22 - 24'	1.83'/2'	Shelby	NM	SD-24 (22-24') BULK DENSITY		CH		(22-24') Shelby Tube (24') END OF BORING

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Core ID: SD-25

Project: Pemart Avenue Works Former MGP & EGP

Project #: 01869-126-240

Client: Consolidated Edison Co. of New York, Inc.

Start Date: 12/12/2007 End Date: 12/12/2007

Contractor: Atlantic Testing Laboratories Inc.

Operator: Timothy Lago

Method: Vibracore
Inner: Flexible Liner

Total Recovery (ft): 8'
Total Depth (ft): 17'
Total Compaction: 5%

Location: Peekskill, New York

Northing: 895595.74 Easting: 648034.39

Mudline Elevation (ft): -8.26'

Depth - Deck to Mudline (ft): 6.5'

Logged by: S. Olson, J. Shackford

SAMPLE				Depth (ft)	USCS	Lithology	Lithologic Description
Sample ID	Recovery (ft)	PID (ppm)	Lab Sample ID				
SD - 25 0 - 4'	18.5'	0.8	SD-25 (3-4)	0	OL		(0-4') Black SILT and ORGANIC MATTER; no odor, no NAPL, no stain, no sheen
SD - 25 4 - 19.4'		0.2	SD-25 (4-5)	5	CL/ CH		(4-10.5') Brown SILTY CLAY, stiff; no odor, no NAPL, no stain, no sheen
				10	CL		(10.5-13') Brown SILTY CLAY, softer than above and below; no odor, no NAPL, no stain, no sheen
				15	CL/ CH		(13-19.4') Brown SILTY CLAY, occasional mud cake layers, firm to stiff; no odor, no NAPL, no stain, no sheen
					CH		(19.4') END OF BORING

Date Start/Finish: 9/9/13-9/11/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' and 3" x 2' Split Spoons

Northing: 895362.00
Easting: 648372.40
Casing Elevation: NA

Borehole Depth: 44' bgs
Surface Elevation: 6.9

Descriptions By: Dave Cornell

Well/Boring ID: **PDB-100**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	0-1.5'	NA	NA	NA	NA		Encountered geotextile fabric at 1.5' bgs by hand digging. Cut and removed geotextile fabric and proceeded with drilling.	
		1	1.5-3'	0.9	16 12 10	NA	ND		Brown medium to coarse SAND and fine to coarse subangular GRAVEL, trace organics (roots) and Silt, non-plastic, moist.	
		2	3-4'	1.0	11 13	NA	ND		Dark gray SILT and fine SAND, some Gravel, trace medium Sand, non-plastic, moist.	
5	-5	3	4-6'	1.6	5 6 11 6	17	ND		Brown silty fine SAND, little to some fine to medium, subangular Gravel (mottled), non-plastic, moist.	
		4	6-8'	1.2	5 3 8 9	11	ND		Brown-gray fine SAND, some fine to medium subangular Gravel, little Silt and Slag, trace medium Sand, non-plastic, saturated.	Borehole backfilled with cement/bentonite grout to grade.
		5	8-10'	1.8	4 9 17 20	26	ND		Black fine to medium SAND and COAL fragments, Cinders, trace Slag, little angular Gravel, non-plastic, saturated.	
10	-10	6	10-12'	1.6	4 2 3 2	5	ND		Dense grades to Loose	
		7	12-14'	1.0	4 6 4 7	10	ND			
15	-15	8	14-16'	1.4	1 2 1 2	3	ND		Dark gray Silty fine SAND, little to trace medium sand, trace fine Gravel, non-plastic, saturated.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level. VF = Vertical fracture; HZ = Horizontal fracture; HA = High angle fracture (>45 degrees from horizontal); MA = moderate angle fracture (45 degrees); LA = Low angle fracture (<45 degree from horizontal).

Geotextile fabric was repaired upon completion of boring.

Client: Con Edison

Well/Boring ID: **PDB-100**

Borehole Depth: 44' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	9	16-18	0.5	2 2 2 1	4	ND		Gray fine to coarse SAND, trace Silt and fine Gravel, non-plastic, saturated.	
	10	18-20	0	WOH	0	ND		No Recovery.	
20 -20	11	20-22	0	WOH	0	ND		20-22' bgs used 3" split spoon instead of 2".	
	12	22-24	0.1	WOH	0	ND		22-24' bgs used 3" split spoon instead of 2". Brown PEAT and gray fine SAND.	
25 -25	13	24-26	1.5	2 3 5 8	8	ND		24-26' bgs used 3" split spoon instead of 2". Gray fine to medium SAND, non-plastic, saturated.	
	14	26-28	1.0	4 3 4 4	7	ND		26-28' bgs used 3" split spoon instead of 2". 28-29.8' bgs trace Silt and Shell fragments.	Borehole backfilled with cement/bentonite grout to grade.
	15	28-30	1.8	3 4 4 3	8	ND		28-30' bgs used 3" split spoon instead of 2". Olive gray SAND, some Silt, trace Shell Fragments, moisture content 25.6%.	
30 -30	16	30-32	1.0	4 3 3 3	6	ND		30-32' bgs used 3" split spoon instead of 2". Brownish-gray fine SAND, trace Silt, Shell fragments, and medium Sand, non-plastic, saturated.	
	17	32-34	2.0	3 9 11 17	20	ND		32-34' bgs used 3" split spoon instead of 2". Brown mottled dense SILT, little to some Clay, trace fine SAND, non-plastic, moist.	
35 -35	18	34-36	1.8	3 4 9 8	13	ND		Brown interbedded CLAY, SILT and fine SAND seams, plastic to non-plastic, saturated. Brown fine to coarse SAND (some structure to sand), little Gravel.	

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Geotextile fabric was repaired upon completion of boring.

Client: Con Edison

Well/Boring ID: **PDB-100**

Borehole Depth: 44' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
								36-36.1' bgs Clay.	
	19	36-38	1.0	1 5 18 13	23	ND		Brown silty fine to coarse SAND, little fine to coarse, multicolored, subangular Gravel, non-plastic, saturated.	
	20	38-39	0.7	27 50/0.2	NA	ND		Some rock fragments, moist, non-plastic.	
40 -40								Highly fragmented zone.	
	21	39-44	5.0	NA	67	ND		Gray granitic GNEISS, (Munsell color Gley 2 5/5PB). Fractures oriented approximately 60 degrees from horizontal. Fractures with appoximate 60 degree angle from horizontal located at 40.1, 40.6, and 42' bgs. 45 degree fracture at 41.6' bgs.	Borehole backfilled with cement/bentonite grout to grade.
								END OF BOREHOLE 44' bgs.	
45 -45									
50 -50									
55 -55									

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Geotextile fabric was repaired upon completion of boring.

Date Start/Finish: 9/10/13-9/11/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' and 3" x 2' Split Spoons

Northing: 895436.40
Easting: 648339.60
Casing Elevation: NA

Borehole Depth: 26' bgs
Surface Elevation: 6.2

Descriptions By: Will Stephens

Well/Boring ID: **PDB-101**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	1-2'	NA	NA	NA	NA		Encountered geotextile fabric at 1.2' bgs by hand digging. Cut and removed geotextile fabric and proceeded with hand clearing to 2' bgs.	
		1	2-4'	1.4	8 15 10 11	25	ND		Brown medium SAND, some subrounded medium Gravel, trace Silt, loose, nonplastic, moist. Brown WOOD. Gray CONCRETE, some coarse Gravel, moist.	
5	-5	2	4-6'	0.4	5 6 2 1	8	2.4		Dark brown to black fine SAND, some yellow fire Brick, trace Silt, trace Concrete, loose, nonplastic, moist. Dark brown to black fine SAND and Silt, little fine Gravel, trace red Brick, loose, nonplastic, wet. Saturated at 5.5' bgs.	
		3	6-8'	0.7	3 8 11 2	19	ND		Dark brown to black fine Gravel and medium to coarse SAND, little subrounded coarse Gravel, trace Silt, loose, nonplastic, wet.	
		4	8-10'	0.4	2 7 9 5	16	ND			Borehole backfilled with cement/bentonite to grade.
10	-10	5	10-12'	1.2	4 8 10 25	18	ND		Gray to grayish brown medium to coarse GRAVEL, some coarse sand, little quartzite Cobbles (with biotite and pyrite inclusions), trace Silt, loose, nonplastic, wet, Moisture Content 12.3%. Began using 3" Split Spoons at 10' bgs	
		6	12-14'	0.6	4 8 11 8	19	ND			
15	-15	7	14-16'	0.8	3 9 11 15	20	ND			

Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

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Client: Con Edison

Well/Boring ID: **PDB-101**

Borehole Depth: 26' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		8	16-18'	1.3	4 11 14 10	25	1.7		16-17.3' bgs trace NAPL blebs (less than .1" diameter), trace sheen, coal tar-like odor.	
		9	18-20'	1.0	31 25 12 5	37	142			
20	-20	10	20-22'	0	3 2 2 2	4	NA		NO RECOVERY	Borehole backfilled with cement/bentonite to grade.
		11	22-24'	0.7	4 4 4 3	8	30.9		Dark gray Elastic SILT, some to little Clay, trace organics, slightly plastic to nonplastic, odor, no visible NAPL or sheen, wet, moisture content 58.1%.	
25	-25	12	24-26'	1.9	NA	NA	NA		Shelby tube collected.	
									END OF BOREHOLE 26' bgs	
30	-30									
35	-35									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Date Start/Finish: 9/11/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' and 3" x 2' Split Spoon

Northing: 895489.90
Easting: 648353.10
Casing Elevation: NA

Borehole Depth: 24' bgs
Surface Elevation: 5.5

Descriptions By: Will Stephens

Well/Boring ID: **PDB-102**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	0-2'	NA	NA	NA	NA		Encountered geotextile fabric at 1.3' bgs by hand digging. Cut and removed geotextile fabric and proceeded with hand clearing to 2' bgs.	
		1	2-4'	1.6	14 9 12 12	21	ND		Brown fine SAND, little Silt, fine subangular Gravel, nonplastic, moist. [FILL] Dark brown to black fine SAND, fine to medium GRAVEL, trace slag, nonplastic, moist. [FILL] Brown fine SAND, little fine to medium GRAVEL, little to trace Silt, trace ceramics, nonplastic, moist. [FILL]	
5	-5	2	4-6'	0.9	14 12 17 18	29	ND		Brown fine SAND and coarse GRAVEL, trace Silt increasing with depth, nonplastic, moist.	
		3	6-8'	0.4	19 21 14 10	35	ND		Saturated at 7' bgs.	
		4	8-10'	0.8	2 1 1 2	2	ND		Gray to brown medium to coarse SAND, some to little fine to medium subangular Gravel, nonplastic, wet.	Borehole backfilled with cement/bentonite to grade.
10	-10	5	10-12'	1.0	WOH WOH WOH WOH	0	ND		10-11' bgs subrounded Gravel.	
		6	12-14'	1.5	6 2 2 3	4	ND		Gray to grayish brown fine to medium SAND, some coarse sand, little fine to medium subangular Gravel, nonplastic, wet. 12-24' bgs used 3" split spoon instead of 2".	
15	-15	7	14-16'	0.6	2 1 1 2	2	ND			

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Client: Con Edison

Well/Boring ID: **PDB-102**

Borehole Depth: 24' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		8	16-18	1.3	10 6 6 7	12	ND			
		9	18-20	1.0	8 6 6 7	12	ND		Gray fine to medium SAND, some medium to coarse subangular Gravel, trace Silt, nonplastic, trace sheen, slight odor, wet.	
20	-20	10	20-22	1.4	7 7 6 3	13	542		Gray to dark gray fine to medium SAND, some fine to medium subangular Gravel, fining downward, nonplastic, some NAPL, MGP/coaltar-like odor, sheen, elevated PID, wet.	Borehole backfilled with cement/bentonite to grade.
		11	22-24	2.0	1 2 1 2	3	ND		Dark gray Elastic SILT, some Clay, soft, no visible staining, no visible NAPL or sheens, moisture content 61.4%.	
									END OF BOREHOLE 24' bgs	
25	-25									
30	-30									
35	-35									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Date Start/Finish: 9/12/13-9/13/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' and 3" x 2' Split Spoon

Northing: 895498.70
Easting: 648324.50
Casing Elevation: NA

Borehole Depth: 50' bgs
Surface Elevation: 5.3

Descriptions By: Will Stephens

Well/Boring ID: **PDB-103**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	0-2'	NA	NA	NA	NA		Encountered geotextile fabric at 1.4' bgs by hand digging. Cut and removed geotextile fabric and proceeded hand clearing to 2' bgs.	
		1	2-4'	2.0	17 15 20 10	35	ND		Gray to brown fine to medium SAND, little fine to medium subangular Gravel, trace Silt, cinders, slag, nonplastic, moist. [FILL]	
5	-5	2	4-6'	1.3	11 14 18 13	32	ND		White quartzite, sulfur-like odor. Gray to brown fine to medium SAND, some fine subangular Gravel, trace Silt, nonplastic, wet. Saturated at 5.5' bgs.	
		3	6-8'	1.4	10 10 12 9	22	ND		Gray fine to medium GRAVEL, some medium Sand, little Silt, coarsening downward, loose, sheen present, no odor, wet. Brown to grayish brown fine SAND, some Silt, little fine to coarse Gravel, trace organics (roots/potential former topsoil), nonplastic, no sheen present, wet.	
10	-10	4	8-10'	1.1	18 11 7 8	18	ND		Gray to grayish brown fine to medium SAND, some coarse Sand, little fine to medium subangular Gravel, nonplastic, wet.	Borehole backfilled with cement/bentonite to grade.
		5	10-12'	1.4	4 2 3 2	5	ND			
		6	12-14'	NR	WOH WOH 1 1	1	ND		NO RECOVERY	
15	-15	7	14-16'	1.2	6 3 1 2	4	ND		Grayish brown fine to medium SAND, some fine to coarse Gravel, loose, nonplastic, wet. 14-24' bgs used 3" split spoon instead of 2".	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Client: Con Edison

Well/Boring ID: **PDB-103**

Borehole Depth: 50' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		8	16-18'	1.8	2 1 2 1	3	5.5		Grayish brown SILT and CLAY, trace organics (roots), soft, slightly plastic, slight coal tar-like odor, moist.	
		9	18-20'	2.0	WOH* WOH* WOH* WOH*	NA	ND		*Blow counts not representative due to Shelby tube inserted in 18-20' bgs interval.	
20	-20	10	20-22'	1.2	NA	NA	ND		Dark gray Elastic SILT, trace Clay, moisture content 59.6%.	
		11	22-24'	2.0	WOH 3 2 3	5	ND		Grayish brown SILT and CLAY, trace organics (roots, root scars, wood), trace shell fragments, soft, slightly plastic, slight coal tar-like odor, moist. Brown wood.	
25	-25	12	24-26'	1.9	WOH WOH 2 2	2	ND		Gray SILT and CLAY, trace fine Sand, trace shell fragments, trace wood, becoming stiffer with depth, slightly plastic to nonplastic, moist.	
		13	26-28'	2.0	WOH WOH WOH WOH	0	ND			Borehole backfilled with cement/bentonite to grade.
		14	28-30'	2.0	WOH WOH WOH 1	0	ND		Gray SILT and CLAY, trace organics, trace wood, soft, slightly plastic, moist. Lense of brown PEAT.	
30	-30	15	30-32'	1.8	WOH WOH 2 2	2	ND		Gray SILT and CLAY, trace organics, trace fine Sand, soft, slightly plastic to nonplastic, moist. Brown PEAT, some wood, loose, sulfur-like odor, moist.	
		16	32-34'	1.8	WOH WOH 2 6	2	ND			
35	-35	17	34-36'	2.0	WOH 2 3 2	5	ND		Trace Silt and Clay below 35.7' bgs.	

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Client: Con Edison

Well/Boring ID: **PDB-103**

Borehole Depth: 50' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	18	36-38	1.6	WOH WOH WOH WOH	0	ND		Gray SILT and CLAY, little organics, nonplastic, saturated.	
	19	38-40	2.0	WOH WOH WOH 3	0	ND			
40 -40	20	40-42	2.1	NA	NA	ND		Dark brown Elastic SILT, some fine Sand, moisture content 82.3%.	
	21	42-44	2.0	WOH WOH WOH WOH	0	ND		Dark gray SILT, little to some Sand, trace organics and shell fragments. Gray coarse SAND and fine GRAVEL, nonplastic, saturated. Dark gray silty fine SAND, trace shell fragments and Clay, nonplastic, saturated.	Borehole backfilled with cement/bentonite to grade.
45 -45	22	44-46	2.0	WOH WOH WOH WOH	0	ND			
	23	46-48	2.0	5 7 7 8	14	ND		Gray SILT and fine to medium SAND, some to little fine to medium Gravel, trace Clay and coarse Sand, nonplastic, saturated.	
	24	48-50	1.0	5 10 11 14	21	ND			
50 -50								END OF BOREHOLE 50' bgs	
55 -55									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Date Start/Finish: 9/13/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' and 3" x 2' Split Spoon

Northing: 895405.90
Easting: 648371.50
Casing Elevation: NA

Borehole Depth: 22' bgs
Surface Elevation: 7.0

Descriptions By: Dave Cornell

Well/Boring ID: **PDB-104**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	0-2'	NA	NA	NA	NA		Encountered geotextile fabric at 1.5' bgs by hand digging. Cut and removed geotextile fabric and proceeded hand clearing to 2' bgs.	
		1	2-4'	1.7	15 8 6 10	14	ND		Brown Silty fine SAND, little fine to coarse angular Gravel, trace Brick, trace fine to medium Sand, trace Coal fragments and cinders, nonplastic, moist. [FILL]	
5	-5	2	4-6'	1.2	15 9 9 10	18	ND			
		3	6-8'	1.1	5 6 8 9	14	ND		Brown fine SAND and fine to coarse, angular GRAVEL, nonplastic, saturated.	
		4	8-10'	1.2	6 14 17 15	31	ND		Brownish gray Silty fine SAND and fine to coarse angular GRAVEL, nonplastic, saturated.	Borehole backfilled with cement/bentonite to grade.
10	-10	5	10-12'	1.1	4 9 8 17	17	ND		Gray fine to coarse SAND and fine to coarse angular GRAVEL, trace Cobbles and Silt, nonplastic, saturated.	
		6	12-14'	1.2	16 20 5 10	25	ND			
15	-15	7	14-16'	NR	1 1 8 5	9	ND		NO RECOVERY: 14-16' bgs began using mud to flush cuttings and 3" Split Spoon.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Runs using 3" split spoon instead of 2" not reported.

Client: Con Edison

Well/Boring ID: **PDB-104**

Borehole Depth: 22' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	8	16-18	1.0	2 4 10 7	14	ND		Gray fine to coarse SAND and fine to coarse angular GRAVEL, trace Cobbles and Silt, nonplastic, saturated. WOOD Brown Silty fine to coarse SAND, little fine Gravel, nonplastic, saturated.	
	9	18-20	1.7	5 3 2 2	5	ND		Grayish brown Elastic SILT, trace Clay and Organics, moisture content 55.0%.	Borehole backfilled with cement/bentonite to grade.
20 -20	10	20-22	1.2	4 2 1 2	3	ND		Gray fine SAND and fine rounded GRAVEL, nonplastic, moist. Brown PEAT, trace Organics, trace Silt, nonplastic, moist.	
								END OF BORING 22' bgs.	
25 -25									
30 -30									
35 -35									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Runs using 3" split spoon instead of 2" not reported.

Date Start/Finish: 9/16/13-9/18/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID/8.25" ID
Rig Type: CME-55
Sampling Method: 3" x 2' Split Spoon

Northing: 895466.00
Easting: 648341.90
Casing Elevation: NA

Borehole Depth: 27' bgs
Surface Elevation: 6.6

Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-105/RW-1**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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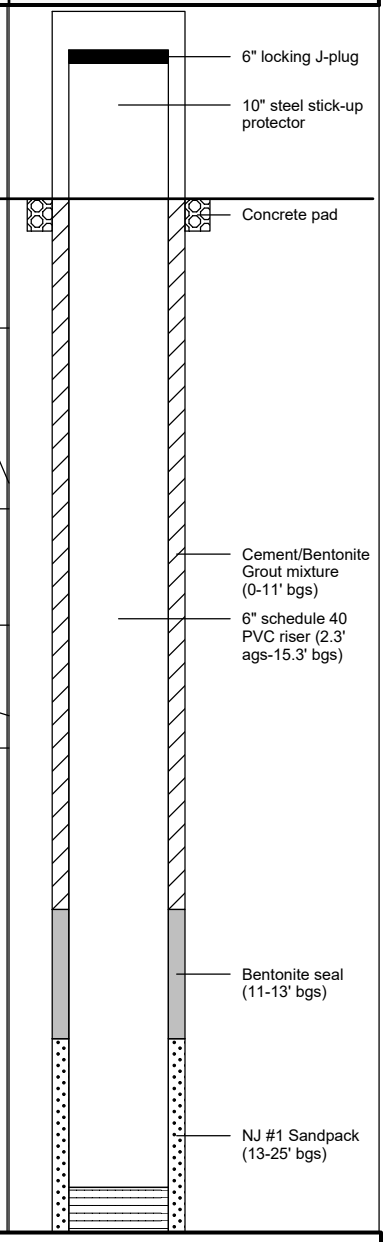
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0	NA	0-2'	NA	NA	NA	NA		Encountered geotextile fabric at 1.2' bgs by hand digging. Cut and removed geotextile fabric and proceeded hand clearing to 2' bgs.
		1	2-4'	2.0	7 9 20 27	29	ND		Brown to dark brown fine to medium SAND, some to little fine to medium Gravel, trace Slag, trace coarse Gravel, loose, moist. [FILL]
									Dark brown fine SAND, some fine to medium subangular Gravel, trace Slag, trace red Brick, loose, moist. [FILL]
5	-5	2	4-6'	1.6	5 5 2 8	7	ND		Brown fine to medium SAND, little fine subangular Gravel, trace Silt, loose, moist to wet. Saturated at 5.5' bgs. Began using mud rotary at 5' bgs to remove cuttings from inside augers. 6-6.6' bgs increasing Gravel with depth.
		3	6-8'	1.1	5 7 12 16	19	ND		Gray medium to coarse angular GRAVEL, some fine Sand, loose,wet.
									Drilled 8-8.5' bgs due to cobbles.
		4	8-10'	1.3	NA 6 5 4	11	ND		Grayish brown medium SAND, little subangular Gravel, trace fine Sand, loose, wet.
10	-10	5	10-12'	1.7	5 4 5 4	9	ND		
		6	12-14'	0.5	4 3 3 3	6	ND		
15	-15	7	14-16'	0.8	2 2 2 2	4	ND		



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Over drilled with 8.25" hollow stem auger down to 27' bgs after augering to 22' bgs with 4.25" hollow stem auger to set 6" recovery well.

Client: Con Edison

Well/Boring ID: **PDB-105/RW-1**

Borehole Depth: 27' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		8	16-18'	0.8	3 2 1 2	3	8.7		Grayish brown medium SAND, little subangular Gravel, trace fine Sand, loose, wet. 16-18' bgs faint coal tar-like odor.	
		9	18-20'	1.3	4 5 7 8	12	46.1		Cobble in shoe with NAPL blebs (less than .1" diameter) and light coating of oily brown NAPL, moderate coal tar-like odor.	NJ #1 sandpack (13-25' bgs)
20	-20	10	20-22'	0.8	4 4 3 2	7	340		Sheens throughout 20-22' bgs increasing to moderate coating of oily-brown NAPL throughout, strong coal tar-like odor.	6" 304 stainless steel wire wrapped slot screen (15-25' bgs)
					6		505		22-22.7' bgs moderate to heavy coating of oily brown NAPL thoughout, strong coal tar-like odor.	
		11	22-24'	1.2	4 3 3	7	6.8		Grayish brown SILT and CLAY, soft, low plasticity, faint coal tar-like odor, wet.	
25	-25									Cement/Bentonite Grout mixture (25-27' bgs) 6" schedule 40 PVC sump and cap (25-27' bgs)
									END OF BORING 27' bgs.	
30	-30									
35	-35									

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Over drilled with 8.25" hollow stem auger down to 27' bgs after augering to 22' bgs with 4.25" hollow stem auger to set 6" recovery well.

Date Start/Finish: 9/17/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' and 3" x 2' Split Spoon

Northing: 895449.00
Easting: 648375.20
Casing Elevation: NA

Borehole Depth: 42.8' bgs
Surface Elevation: 6.6

Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-106**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	0-2'	NA	NA	NA	NA		Encountered geotextile fabric at 1.3' bgs by hand digging. Cut and removed geotextile fabric and proceeded hand clearing to 2' bgs.	
		1	2-4'	2.0	10 11 10 9	21	ND		White, brown, and black fine to medium SAND, some fine subangular Gravel, little Slag, Ash, Coal, trace Silt, loose, moist. [FILL] 2-20' bgs used 3" x 2' split spoon	
5	-5	2	4-6'	0.6	4 12 7 7	19	ND		Saturated at 6' bgs.	
		3	6-8'	0.8	8 8 4 9	12	ND		Brown fine SAND, some fine to medium subangular Gravel with size increasing with depth, little Silt, loose, medium density, possible purifier material, sulfur-like odor, wet. [FILL] 6.4' bgs blue Rock fragments.	
		4	8-10'	NR	9 9 11 6	20	NA		8-10' bgs NO RECOVERY	Borehole backfilled with cement/bentonite to grade.
10	-10	5	10-12'	1.0	12 14 19 10	33	ND		White subangular Quartzite rock fragments.	
		6	12-14'	NR	21 10 12 11	22	NA		12-14' bgs NO RECOVERY	
15	-15	7	14-16'	1.0	21 25 18 50/2	43	ND		Gray to grayish brown medium SAND, some fine Sand, some to little fine to medium subangular Gravel, Quartzite cobble in shoe, loose, wet.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Runs using 3" split spoon instead of 2" not reported.

Client: Con Edison

Well/Boring ID: **PDB-106**

Borehole Depth: 42.8' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		8	16-18	NA	NA	NA	NA		Drilled to 18' bgs due to cobbles	
		9	18-20	1.3	10 12 2 3	14	ND		Gray to grayish brown fine to medium subangular GRAVEL, little fine to medium Sand, very loose, wet.	
20	-20								Gray SILT and CLAY, trace Organics and fine Sand, low plasticity, soft, wet. 19.4' bgs seam of fine Sand.	
		10	20-22	1.6	WOH	0	ND			
		11	22-24	1.7	2 2 2 2	4	ND		Brown organic PEAT. 22.1' bgs seam of gray Silt.	
25	-25	12	24-26	0.9	WOH 1 2 2	3	ND		Gray medium SAND, little fine Sand, trace Silt, loose, wet.	Borehole backfilled with cement/bentonite to grade.
		13	26-28	1.2	2 3 3 4	6	ND			
		14	28-30	1.0	WOH WOH 2 2	2	ND			
30	-30	15	30-32	1.5	WOH 2 2 3	4	ND		30.4' bgs seam of brown PEAT and gray fine GRAVEL.	
		16	32-34	1.8	2 2 2 2	4	ND		Gray fine to medium SAND, trace Silt, loose, wet	
35	-35	17	34-36	1.3	2 3 3 5	6	ND		Grayish brown to brown SILTY CLAY, trace fine Sand and mottling, moderately stiff, moderate plasticity, wet.	

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Runs using 3" split spoon instead of 2" not reported.

Client: Con Edison

Well/Boring ID: **PDB-106**

Borehole Depth: 42.8' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
				19				Stiffening with depth.	
	18	36-38	0.9	15 16 35	31	ND		Brown fine to medium SAND, little Silt, medium density, oxidized/rusty appearance, moist.	
	19	38-40	0.5	9 14 21 18	35	ND		38-40' bgs little fine to medium subangular Gravel. Showing some colorized structures with Sand.	
40 -40	20	40-42	0.8	14 11 12 17	23	ND		40-42' bgs little fine to medium subangular Gravel.	
	21	42-44	0.6	12 50/3	NA	ND		42-42.8' bgs little fine to medium subangular Gravel and Gneiss rock fragments in shoe.	
								END OF BORING 42.8' bgs.	
45 -45									
50 -50									
55 -55									

Borehole backfilled with cement/bentonite to grade.

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Runs using 3" split spoon instead of 2" not reported.

Date Start/Finish: 9/18/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' and 3" x 2' Split Spoon

Northing: 895568.40
Easting: 648274.60
Casing Elevation: NA

Borehole Depth: 24' bgs
Surface Elevation: 1.9

Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-107**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0	1	0-2'	1.5	17 16 8 4	24	ND		Gray/brown medium SAND, little coarse Gravel, trace fine Gravel and fine Sand, loose, wet. Saturated 1' bgs.
		2	2-4'	1.5	4 4 6 4	10	ND		Gray/brown medium SAND, little fine to coarse Sand, trace coarse Gravel, fining and darkening with depth, loose, wet. 4' bgs: WOOD. Start mud rotary to remove cuttings from augers.
5	-5	3	4-6'	0.6	6 4 4 3	8	14.7		Dark gray fine SAND, little medium Sand, trace fine subrounded Gravel, loose, wet. 4-6' bgs sheen on last 0.3' of spoon, faint to moderate odor.
		4	6-8'	1.5	4 3 2 2	5	9.5		6-8' bgs heavy sheen throughout spoon, faint to moderate odor.
		5	8-10'	1.3	2 2 2 2	4	28.5 9.8 3.2		8-9.1' bgs sheen through top half of spoon, faint odor. Gray SILT, some fine Gravel, trace fine Sand and Organics, soft, faint odor, wet.
10	-10	6	10-12'	NR	3 2 1 1	3	NA		NO RECOVERY
		7	12-14'	1.4	WOH WOH WOH 2	0	ND		Grayish brown SILTY CLAY, trace Organics and fine Sand, low to no plasticity, soft.
15	-15	8	14-16'	1.1	NA	NA	NA		Dark grayish brown Elastic SILT, moisture content 70.4%.

Well/Boring Construction

Borehole backfilled with cement/bentonite to grade.

Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

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Client: Con Edison

Well/Boring ID: **PDB-107**

Borehole Depth: 24' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	2.0	WOH/2'	0	ND		Grayish brown SILTY CLAY, trace Organics (decreasing with depth) and fine Sand, low to no plasticity, soft,.	
		10	18-20	1.8	2 2 2 2	4	ND			Borehole backfilled with cement/bentonite to grade.
20	-20								END OF BOREHOLE 20' bgs	
25	-25									
30	-30									
35	-35									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Date Start/Finish: 9/19/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' and 3" x 2' Split Spoon

Northing: 895436.10
Easting: 648356.70
Casing Elevation: NA

Borehole Depth: 24' bgs
Surface Elevation: 6.8

Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-108**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	0-16'	NR	NA	NA	NA		Blind drilled to 16' bgs using 4.25" HSA. Geotextile fabric at 1.3'bgs. 4' bgs started using mud rotary to flush cuttings from augers. Dark brown and gray fine to medium SAND, trace fine Gravel, loose to medium	Borehole backfilled with cement/bentonite to grade.
5	-5									
10	-10									
15	-15									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Overdrilled with 8.25" HSA to 5'bgs to install 6" well, but abandonned and backfilled with cement/bentonite grout mixture.

Client: Con Edison

Well/Boring ID: **PDB-108**

Borehole Depth: 24' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
									density, wet.	
		1	16-18	1.2	24 35 16 21	51	ND		Brown WOOD. 16-22' bgs used 3" x 2' split spoon.	
		2	18-20	0.3	6 11 6 4	17	ND		Trace Recovery, possible slough	
20	-20	3	20-22	1.7	2 2 2 2	4	ND		Grayish brown SILT, some Clay, trace Organics, soft, low plasticity, wet. 22-22.6' bgs trace fine Sand.	Borehole backfilled with cement/bentonite to grade.
		4	22-24	1.2	WOH/1 2 2	4	ND		Gray fine to medium SAND, trace Silt and Organics, medium density, wet. Brown PEAT, moist.	
									END OF BOREHOLE 24' bgs	
25	-25									
30	-30									
35	-35									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Overdrilled with 8.25" HSA to 5'bgs to install 6" well, but abandonned and backfilled with cement/bentonite grout mixture.

Date Start/Finish: 9/19/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID/8.25" ID
Rig Type: CME-55
Sampling Method: 3" x 2' Split Spoon

Northing: 895488.00
Easting: 648349.30
Casing Elevation: NA

Borehole Depth: 27' bgs
Surface Elevation: 5.5

Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-109/RW-2**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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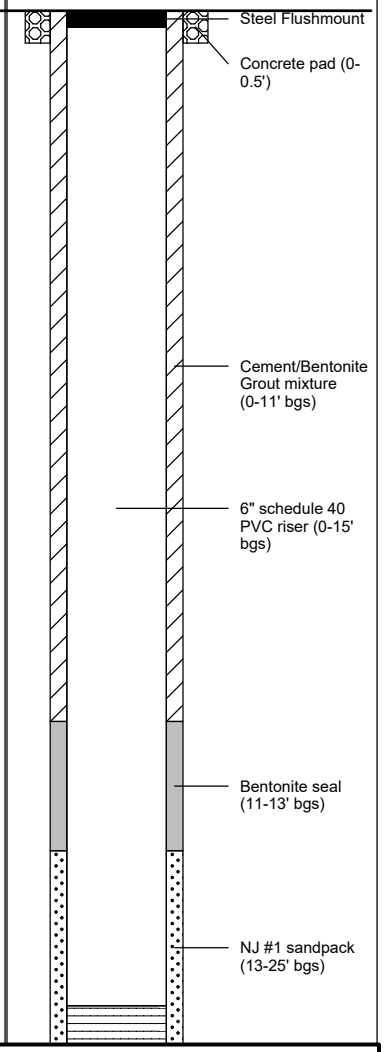
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0	1	0-16'	NA	NA	NA	NA		0-16' bgs blind drilled, no samples taken. Encountered geotextile fabric at 1.3' bgs by hand digging. 4' bgs started using mud rotary to clear cutting from auguers.
5	-5								
10	-10								
15	-15								



Well/Boring Construction

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Over drilled with 8.25" hollow stem auger down to 27' bgs after augering to 24' bgs with 4.25" hollow stem auger to set 6" recovery well.

Client: Con Edison

Well/Boring ID: **PDB-109/RW-2**

Borehole Depth: 27' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		2	16-18'	0.6	4 WOH/1 1	NA	ND		Brown fine SAND, littl fine Gravel, Silt, and Organics, no odor, wet.	
20	-20	3	18-20'	0.5	2 2 1 1	3	ND		Gray medium SAND, some fine Sand, little fine subangular Gravel, loose, darkening with depth to dark gray, no odor, wet.	
		4	20-22'	2.0	5 16 24 12	40	48.1			6" 304 stainless steel continuous wirewrapped well slot screen (15-24' bgs) NJ #1 sandpack (13-25' bgs)
		5	22-24'	1.7	12 6 3 2	9	89.8 467 5.5		Gray SILT, some Clay, trace fine Sand, low plasticity, soft, wet.	
25	-25									Cement/Bentonite Grout mixture (25-27' bgs) 6" schedule 40 PVC sump and cap (25-27' bgs)
									END OF BORING 27' bgs.	
30	-30									
35	-35									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Over drilled with 8.25" hollow stem auger down to 27' bgs after augering to 24' bgs with 4.25" hollow stem auger to set 6" recovery well.

Date Start/Finish: 9/24/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 3" x 2' Split Spoon

Northing: 895705.00
Easting: 648495.10
Casing Elevation: NA

Borehole Depth: 7.2' bgs
Surface Elevation: 7.3

Descriptions By: Will Stephens

Well/Boring ID: **PDB-110**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0									
		1	0-5'	NA	NA	NA	NA		Hand cleared to 3.7' bgs. Augered to 5' bgs due to cobbles.	
5	-5								Brown fine to medium SAND and medium to coarse subangular GRAVEL, little SILT, trace fine subangular Gravel, potentially weathered bedrock, Granite cobble in shoe, loose, wet.	
		2	5-7'	0.5	77/0.5	NA	ND		5.5-7' bgs augered. 6' bgs auger started smooth grind.	
		3	7-7.2'	NR	50/0.2	NA	NA		NO RECOVERY.	
									END OF BOREHOLE 7.2' bgs	
10	-10									
15	-15									

Borehole backfilled with cement/bentonite to grade.

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Date Start/Finish: 9/24/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 3" x 2' Split Spoon

Northing: 895657.00
Easting: 648500.50
Casing Elevation: NA

Borehole Depth: 29.5' bgs
Surface Elevation: 7.4

Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-111**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	0-5.5'	NA	NA	NA	NA		Hand cleared to 5.5' bgs.	
5	-5	1	5.5-7'	1.3	7 5 3	8	27.7		Grayish brown fine SAND, some Silt, some to little fine to coarse subangular Gravel, dark brown NAPL blebs throughout (.25" diameter), trace sheen, faint to moderate odor, loose, wet.	
		2	7-8.3'	1.3	3 11 50/.3	NA	42.7		Brown to light gray fine SAND, some fine to coarse subangular Gravel, trace NAPL blebs, wet, loose to moderately dense Brown to light brown fine SAND, little fine Gravel, medium density, moist to wet, no visible impact, no odor	
									Augered to 9' bgs.	
10	-10	3	9-11'	1	29 27 38 28	65	2.4		Brown to light brown fine to medium SAND, trace fine to coarse subangular Gravel (Gneiss), dense, moist, seam of coarse Sand at 9.5' bgs, no impacts	
		4	11-13'	1	14 21 43 47	64	12.3		Brown to brownish gray fine SAND, some Silt, some to little fine subangular Gravel, dense, moist to wet, faint coal tar-like odor.	
		5	13-14.2'	NR	26 46 50/.2	NA	NA		No recovery.	
									Augered to 15' bgs.	
15	-15	6	15-17'	1.6	15 27		60.3		Brown fine SAND and Gneiss ROCK FRAGMENTS, little Silt, fine Gravel, wet, loose, faint coal tar-like odor. Gray to green fine SAND, little Silt, well sorted, moist to wet, dense.	Borehole backfilled with cement/bentonite to grade.

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Client: Con Edison

Well/Boring ID: **PDB-111**

Borehole Depth: 29.5' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	6	15-17	1.6	22 26	49	60.3		Brown medium to fine SAND, little fine subangular Gravel, trace Silt, wet, medium density,seam of coarse Sand at 16' bgs	
	7	17-17.9'	0.9	32 50/.4	NA	4.5		Gray to pink weathered ROCK (Gneiss), loose, wet, grain size increasing with depth.	
								Augered to 19' bgs.	
	8	19-19.4'	0.4	75/0.4	NA	0.8		Gray to pink weathered ROCK (Gneiss), loose, wet, grain size increasing with depth.	
20 -20	9	19.5-29.5'	0.5	NA	NA	NA		fragmented ROCK (Gneiss).	
25 -25									
30 -30								END OF BOREHOLE 29.5' bgs	
35 -35									

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

Date Start/Finish: 9/25/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 3" x 2' Split Spoon

Northing: 895710.60
Easting: 648442.20
Casing Elevation: NA

Borehole Depth: 11.5' bgs
Surface Elevation: 7.4

Descriptions By: Will Stephens

Well/Boring ID: **PDB-112**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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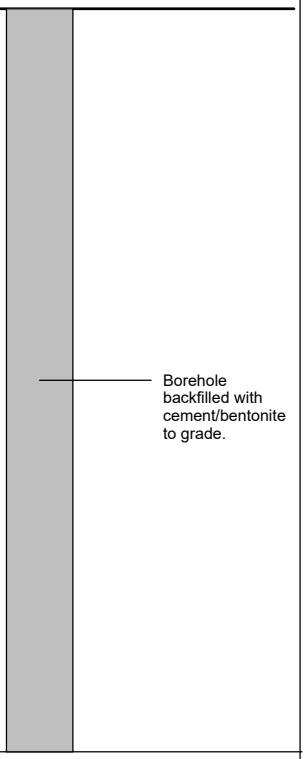
DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-5'	NA	NA	NA	NA		Hand cleared to 5' bgs.	
5	-5	2	5-5.9'	0.8	6 50/.4	NA	2.1		Brown medium to fine SAND, some fine to coarse subangular Gravel, trace Silt, red Brick, Slag, wet to moist, loose, fill.	
									Augered to 6.5' bgs	
10	-10	3	6.5-11.5	4.6	NA	62	NA		Gray to Dark Gray Granitic Gneiss (Munsell color Gley 2 4/10B). Fractures oriented approximately 60 degrees from horizontal. Fractures with appoximate 60 degree angle from horizontal located at 7.4 to 7.7', 8.3', and 9.1' bgs.	
									END OF BOREHOLE 11.5' bgs	
15	-15									



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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level. VF = Vertical fracture; HZ = Horizontal fracture; HA = High angle fracture (>45 degrees from horizontal); MA = moderate angle fracture (45 degrees); LA = Low angle fracture (<45 degree from horizontal).

Date Start/Finish: 9/26/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 2" x 2' Split Spoon

Northing: 895728.40
Easting: 648423.90
Casing Elevation: NA

Borehole Depth: 6.8' bgs
Surface Elevation: 6.8

Descriptions By: Will Stephens

Well/Boring ID: **PDB-113**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0		0-5'	NA	NA	NA	NA		Hand cleared to 5' bgs.	Borehole backfilled with cement/bentonite to grade.
5	-5	1	5-6.8'	1.2	13 13 16 50/.3	29	119		Brown fine to medium SAND and GRAVEL, little Silt, moist, loose, fill. Gray SILT and GRAVEL, little fine to medium Sand, weathered bedrock in shoe, loose, wet, NAPL blebs present from 5.9-6.7' bgs, light brown NAPL coating on bed rock fragments. END OF BOREHOLE 6.8' bgs	
10	-10									
15	-15									

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Date Start/Finish: 9/26/13
Drilling Company: Parratt-Wolff
Driller's Name: Doug Richmond
Drilling Method: Hollow Stem Auger
Auger Size: 4.25" ID
Rig Type: CME-55
Sampling Method: 3" x 2' Split Spoon

Northing: 895734.20
Easting: 648454.20
Casing Elevation: NA

Borehole Depth: 8.5' bgs
Surface Elevation: 7.7

Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-114**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0.5-2'	1.5	8 8 6	14	ND		Dark brown to reddish brown fine SAND, little Silt, trace medium Sand, fine subangular Gravel, Brick, Slag, Glass, Organics, Coal, Moist, loose.	
		2	2-3.2'	1.2	5 5 50/.2	NA	ND		Light brown to gray SILT and CLAY, little fine to medium Gravel, trace fine Sand, Organics throughout, moist to wet, soft, low plasticity, cobbles in shoe.	
									Augered to 3.5' bgs	
5	-5	3	3.5-8.5'	4.7	NA	52	NA		Gray to Dark Gray Granitic Gneiss with laminated to banded quartzite veins (Munsell color Gley 2 4/10B). Fractures oriented approximately 70 degrees from horizontal. Fractures with appoximate 70 degree angle from horizontal located at 5.1, 5.9 to 6.2', and 6.5 to 7.5' bgs.	Borehole backfilled with cement/bentonite to grade.
									END OF BOREHOLE 8.5' bgs	
10	-10									
15	-15									

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Date Start/Finish: 12/11/13-12/12/13
Drilling Company: Parratt-Wolff
Driller's Name: Brad Palmer
Drilling Method: Hollow Stem Auger
Auger Size: 8.25" ID
Rig Type: Maruka trackrig
Sampling Method:
2" x 2' Split Spoon

Northing: 895540.0
Easting: 648407.2
Casing Elevation: 7.8' AMSL

Borehole Depth: 28' bgs
Surface Elevation: 8.3' AMSL

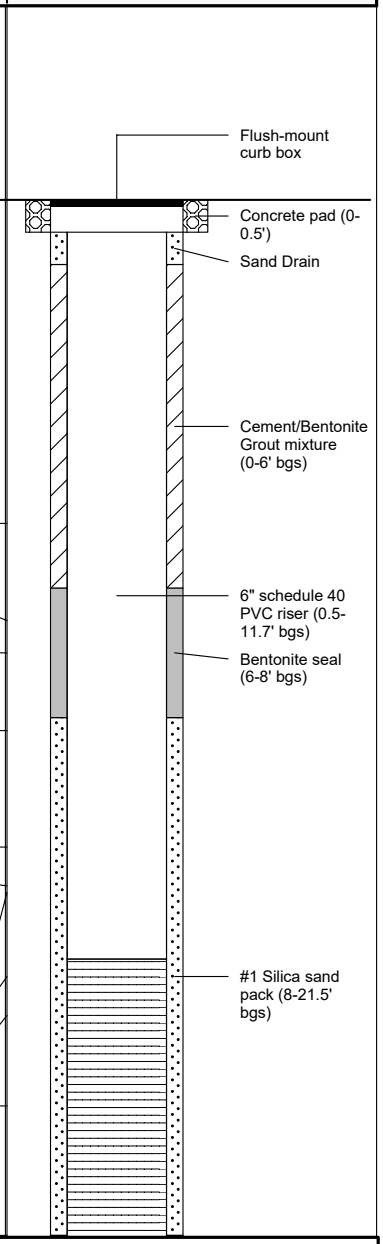
Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-115/RW-3**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
10								
0								
	NA	NA	NA	NA	NA	NA		Hand cleared to 5' bgs. [Fill]
5								
5	1	5-6.5'	0.8	6 6 4 50/0.0	10	ND		Black to dark brown medium to fine SAND and SILT, trace fine to medium subangular Gravel, trace Organics, loose, moist.
								Drilled to 7.0' bgs
	2	7-8.2'	0.7	7 32 50/.2	NA	1.9		Gray coarse to fine SAND, some Silt, fine angular Gravel, medium density, petroleum-like odor, wet,
0								Drilled to 10' bgs.
10								
	3	10-12'	0.9	25 8 15 12	23	1.1		WOOD Black COAL fragments, some to little fine to medium Sand, trace Silt, trace Wood, loose, odor, wet. Gray medium to coarse SAND, some fine Sand, trace subangular Gravel, moderately dense, loose, wet.
-5	4	12-14'	1.0	10 9 15 8	24	8.7		WOOD, moderate sheen, wet. Gray fine to medium SAND, little coarse Sand, trace subangular Gravel, trace Silt, loose to moderately dense, moderate to heavy sheen, odor, wet.
15	5	14-16'	NR	5 6 4 6	10	NA		No Recovery



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Remarks: ags = above ground surface
AMSL = Above Mean Sea Level
bgs = below ground surface
NA = Not Applicable/Available
ND=Non Detect
NR = No Recovery

1st Attempt- Refusal encountered at 6.5' bgs.

Client: Con Edison

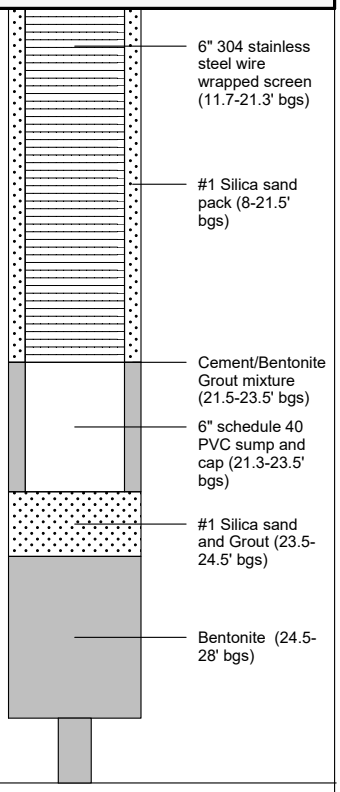
Well/Boring ID: **PDB-115/RW-3**

Borehole Depth: 28' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
	6	16-18	0.6	9 6 5 4	11	139		Gray medium SAND, some coarse to fine Sand, well sorted, trace sheen, trace NAPL, odor, loose, wet. Trace NAPL and wood below 16.5' bgs.
-10	7	18-20	0.0	1 2 1 1	3	NA		No Recovery Dark gray medium SAND, little fine Sand, Silt, Organics, loose, moderate to heavy sheen, wet.
20	8	20-22	0.3	2 3 2 2	5	9.3		Gray SILT, little to trace Clay, soft, moderate odor, nonplastic, wet.
-15	9	22-24	0.5	1 1 2 2	3	19.0		
25	10	24-26	1.5	2 2 2 2	4	14.6		Brown PEAT.
	11	26-28	1.8	5 5 5 5	10	2.4		Brown WOOD. Brown PEAT.
-20								END OF BORING 28' bgs.
30								
-25								
35								

Well/Boring Construction



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Remarks: ags = above ground surface
AMSL = Above Mean Sea Level
bgs = below ground surface
NA = Not Applicable/Available
ND=Non Detect
NR = No Recovery

1st Attempt- Refusal encountered at 6.5' bgs.

Date Start/Finish: 12/13/13-12/16/13
Drilling Company: Parratt-Wolff
Driller's Name: Brad Palmer
Drilling Method: Hollow Stem Auger
Auger Size: 8.25" ID
Rig Type: Maruka trackrig
Sampling Method:
2" x 2' Split Spoon

Northing: 895602.9
Easting: 648352.7
Casing Elevation: 6.5' AMSL

Borehole Depth: 20.1' bgs
Surface Elevation: 6.8' AMSL

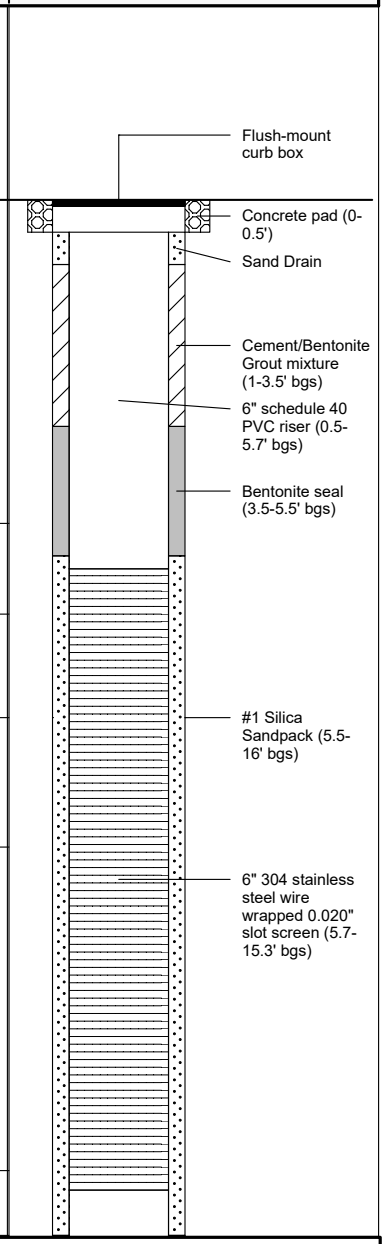
Descriptions By: A. Allen/ J. Oliver

Well/Boring ID: **PDB-116/RW-4**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0 / 5	NA	NA	NA	NA	NA	NA		Hand cleared to 5' bgs. [Fill]
5 / 0	1	5-6'	1.0	5 9	NA	0.4		Dark brown to brown fine to medium SAND, little coarse Sand, little medium to fine subangular Gravel, trace Wood, trace Coal fragments, moist.
	2	6-8'	1.3	5 5 6 4	11	59.3		Brown turning gray at 6.9' bgs fine to medium SAND, some fine Gravel and coarse Sand, trace Silt, loose to moderately dense, odor, trace staining below 6.9' bgs, moist to wet.
	3	8-10'	0.1	4 3 3 1	6	54.0		Gray brown medium angular GRAVEL, trace fine Sand, trace Silt, odor, light NAPL coating, wet.
10 / -5	4	10-12	0.3	WOH 1 1 1	2	95.2		Gray brown fine to medium SAND, trace angular fine Gravel, trace Silt, odor, light NAPL coating becoming NAPL saturated below 12.7'bgs, wet.
	5	12-14	0.9	2 2 4 8	6	301		
15	6	14-16	1.2	5 2 1 1	3	75 48		Gray Silty CLAY, soft to moderately stiff, low plasticity, odor decreasing with depth.



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Remarks: ags = above ground surface
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bgs = below ground surface
NA = Not Applicable/Available
NR = No Recovery

Client: Con Edison

Well/Boring ID: **PDB-116/RW-4**

Borehole Depth: 20.1' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
-10	7	16-18	1.6	4 3 4 3	7	10		Gray Silty CLAY, soft to moderately stiff, low plasticity, odor decreasing with depth.	6" schedule 40 PVC sump and cap (15.3-17.6' bgs) Cement/Bentonite Grout mixture (15.3-20.1' bgs)
20	8	18-20.1'	2.1	4 3 1 1	4	3.4		Wood at 19.2' bgs. Lense of gray fine SAND. Brown PEAT. END OF BORING 20.1' bgs.	
-15									
25									
-20									
30									
-25									
35									

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Remarks: ags = above ground surface
AMSL = Above Mean Sea Level
bgs = below ground surface
NA = Not Applicable/Available
NR = No Recovery

Date Start/Finish: 12/17/13
Drilling Company: Parratt-Wolff
Driller's Name: Brad Palmer
Drilling Method: Hollow Stem Auger
Auger Size: 8.25" ID
Rig Type: Maruka Trackrig
Sampling Method:
2" x 2' Split Spoon

Northing: 895651.8
Easting: 648295.9
Casing Elevation: 6.2' AMSL

Borehole Depth: 24' bgs
Surface Elevation: 6.6' AMSL

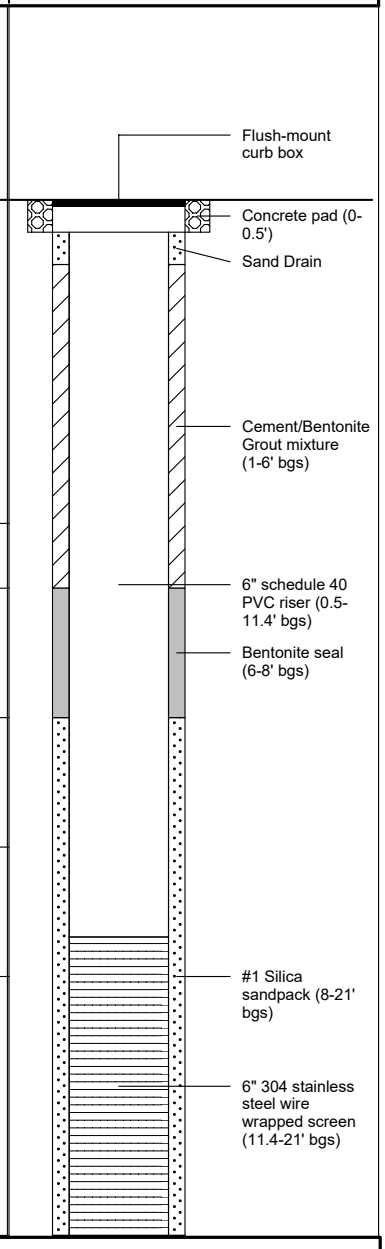
Descriptions By: Joshua Oliver

Well/Boring ID: **PDB-117/RW-5**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0 / 5	NA	NA	NA	NA	NA	NA		Hand cleared to 5' bgs [Fill].
5 / 0	1	5-6'	0.9	6 6	NA	6.8		Dark brown fine to medium SAND, trace Silt, trace Clay,loose, faint odor, moist to wet.
	2	6-8'	1.3	8 15 15 14	30	37.0		Dark brown fine to medium SAND, trace Silt, trace Clay, trace fine Gravel, loose, faint odor increasing with depth, wet. Sheen on split spoon shoe
	3	8-10'	0.5	5 7 10 15	17	31.2		Dark brown fine to medium SAND, trace Silt, trace Clay, trace fine Gravel, loose, Cobble in shoe, faint to moderate odor,sheen, wet.
10 / -5	4	10-12	0.9	9 12 6 10	18	115.1		Black to dark brown fine GRAVEL and medium to fine SAND, trace Silt, loose, moderate to strong odor, brown to dark brown moderate to heavy NAPL coating throughout, wet.
	5	12-14	1.1	22 10 15 12	25	69.3		Black to dark brown fine to medium GRAVEL and SILT, Wood in shoe, loose, soft, moderate to strong odor, brown to dark brown moderate to heavy NAPL coating throughout, wet.
15	6	14-16	1.4	3 28 22 17	50	38.7		



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Remarks: ags = above ground surface
AMSL = Above Mean Sea Level
bgs = below ground surface
NA = Not Applicable/Available
NR = No Recovery

Client: Con Edison

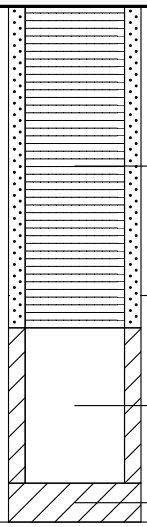
Well/Boring ID: **PDB-117/RW-5**

Borehole Depth: 24' bgs

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-10	7	16-18	NR	50/.3	NA	NA		No Recovery, augered to 18' bgs.
	8	18-19.2'	0.6	12 10 50/0.2	NA	32.1		Brown gray SILT and fine GRAVEL, very soft, dark brown NAPL stringers, faint to moderate odor.
								Spoon refusal, augered to 20' bgs.
20	9	20-22	NR	50/0.0	NA	NA		Spoon refusal, augered to 22' bgs.
-15	10	22-24	1.1	11 6 5 5	11	10.0		Dark brown to dark gray Silty CLAY, very faint odor, no visable impacts.
								END OF BORING 24' bgs.
25								
-20								
30								
-25								
35								

Well/Boring Construction



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Remarks: ags = above ground surface
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bgs = below ground surface
NA = Not Applicable/Available
NR = No Recovery

Date Start/Finish: 2/9/2016
Drilling Company: Parratt Wolff, Inc.
Driller's Name: Mark Eaves
Drilling Method: Concrete Core
Sampling Method: NA
Rig Type: Hilti Drill

Northing: NA
Easting: NA
Borehole Depth: 0.8' bgs
Surface Elevation: NA
Descriptions By: Will Stephens

Well/Boring ID: **PDI-01-2016**
Client: Con Edison
Location: Former Pemart Ave. Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 0	1	0-0.8	NA	0.0			CONCRETE slab. Gray medium to coarse GRAVEL (sub base layer). Dark gray BOULDERS. Unable to advance boring beyond 0.8' bgs due to boulders.	Boring backfilled with gravel and topped off with a concrete patch.
5 / -5								
10 / -10								
15 / -15								

Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.
Cored through concrete at two locations and unable to advance boring due to boulders.

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Date Start/Finish: 2/10/2016 **Drilling Company:** Parratt Wolff, Inc. **Driller's Name:** Mark Eaves **Drilling Method:** Direct Push **Sampling Method:** 4' MacroCore Barrel **Rig Type:** Geoprobe 6712 DT	**Northing:** 895713.2286 **Easting:** 648424.6121 **Borehole Depth:** 6.5' bgs **Surface Elevation:** 7.17' AMSL **Descriptions By:** Will Stephens	**Well/Boring ID:** **PDI-02-2016** **Client:** Con Edison **Location:** Former Pemart Ave. Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
5	1	0-4	1.5	0.1			Dark brown to black fine to medium SAND, little Silt, little fine to medium angular Gravel, trace red Brick, Mortar, and Cinders, moist. [FILL]	Boring backfilled with bentonite chips.
	2	4-6.5	1.5	0.4			Dark brown medium to coarse SAND, some fine to medium angular Gravel, trace irridescent sheens, faint coal tar-like odor, wet. [FILL] Powerded light gray CONCRETE.	
5								
0							Refusal at 6.5' bgs.	
10								
-5								
15								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.
All survey and elevation data referenced to NGVD 29.
Attempted second advancement 1.5' east and met refusal at 6.5' bgs.

Date Start/Finish: 2/10/2016 **Drilling Company:** Parratt Wolff, Inc. **Driller's Name:** Mark Eaves **Drilling Method:** Direct Push **Sampling Method:** 4' MacroCore Barrel **Rig Type:** Geoprobe 6712 DT	**Northing:** 895701.9848 **Easting:** 648435.4605 **Borehole Depth:** 8.0' bgs **Surface Elevation:** 7.44' AMSL **Descriptions By:** Will Stephens	**Well/Boring ID:** **PDI-03-2016** **Client:** Con Edison **Location:** Former Pemart Ave. Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
	1	0-4	2.0	0.0			Dark brown fine to medium SAND, little fine to medium angular Gravel, trace Silt, trace red Brick, Concrete, Cinders, and Slag, moist. [FILL]	
5								
	2	4-8	2.5	0.3			Dark gray SILT, some fine to medium angular Gravel, trace irridescent sheens, coal tar-like odor, soft, wet. 10 YR 5/1	Boring backfilled with bentonite chips.
0								
5								
	3	8-11.5	3.3	3.6			Dark gray SILT, some fine to medium angular Gravel, trace irridescent sheens, coal tar-like odor, abundant brown to black NAPL blebs (2-4 mm diameter), soft, wet. 10 YR 5/1	
10							Dark gray weathered Granitic GNEISS fragments, some fine to coarse Sand, irridescent sheens, dense, coal tar-like odor, moist.	
							Refusal at 11.5' bgs.	
-5								
15								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.
All survey and elevation data referenced to NGVD 29.
Refusal encountered at 4' bgs on first attempt.

Date Start/Finish: 2/10/2016	**Northing:** 895662.5337	**Well/Boring ID:** **PDI-04-2016**
Drilling Company: Parratt Wolff, Inc.	**Easting:** 648477.0266	**Client:** Con Edison
Driller's Name: Mark Eaves	**Borehole Depth:** 14.8' bgs	**Location:** Former Pemart Ave. Peekskill, NY
Drilling Method: Direct Push	**Surface Elevation:** 7.83' AMSL	
Sampling Method: 4' MacroCore Barrel	**Descriptions By:** Will Stephens	
Rig Type: Geoprobe 6712 DT		

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
	1	0-4	3.0	0.0			Dark brown fine to medium SAND, trace red Brick trace Organics (roots), moist, loose. 2.5Y 3/1 [FILL]	
							Light brown fine to medium SAND, trace fine angular Gravel, loose, moist. 2.5 Y 6/3 [FILL]	
5							Dark brown to gray fine to medium SAND, little fine to medium angular Gravel, trace Silt, trace red Brick, moist, 2.5 Y 4/2 [FILL]	
	2	4-8	2.8	6.8			Black stained fine to coarse SAND and fine to medium angular GRAVEL, trace Silt, trace red Brick, dark brown NAPL blebs (~1-3 mm diameter), irridescent sheens, coal tar-like odor, wet. [FILL]	
5							Dark gray SILT, trace subround medium Gravel, soft. 2.5 Y 5/1	
0							No Recovery, blind drilled to 8' bgs.	Boring backfilled with bentonite chips.
							Dark gray medium SAND, abundant dark brown NAPL blebs (~3 mm diameter), coal tar-like odor, irridescent sheens, 2.5 Y 5/1	
							Dark gray SILT, little fine Sand, trace dark brown to black NAPL blebs (~ 10 mm diameter), lens of fine to medium Sand with light NAPL coating at 8.8' bgs (< 0.1' thick), loose, wet. 2.5 Y 5/1	
10	3	8-12	2.6	3.7			Light brown fine SAND, trace irridescent sheens, loose, wet. 2.5 Y 6/3	
							Light gray to brown medium to coarse angular GRAVEL, dense, wet.	
							Gray weathered Granitic GNEISS, trace black NAPL blebs (~1-2 mm diameter), trace Silt, wet. 2.5 Y 6/1	
-5							Light brown weathered Quartzite, some fine to medium Sand, little medium to coarse rock fragments containing Quartzite with pyrite inclusions, dense, trace Granitic Gneiss containing weathered muscovite/biotite bands present	
	4	12-14.8	1.7	0.0				
15							Refusal at 14.8' bgs.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.
Attempted location 3 times. Met refusal at 3.8' bgs on the first attempt. Moved second attempt 10' north of surveyed point and met refusal at 7.7' bgs. Third attempt was located 8.5' north of surveyed point. Blind drilled to 8' bgs and met refusal at 14.8' bgs. This boring log is compiled from the second and third attempts.
All survey and elevation data referenced to NGVD 29.

Date Start/Finish: 2/10/2016	**Northing:** 895643.9228	**Well/Boring ID:** **PDI-05-2016**
Drilling Company: Parratt Wolff, Inc.	**Easting:** 648494.7655	**Client:** Con Edison
Driller's Name: Mark Eaves	**Borehole Depth:** 12.5' bgs	**Location:** Former Pemart Ave. Peekskill, NY
Drilling Method: Direct Push	**Surface Elevation:** 7.83' AMSL	
Sampling Method: 4' MacroCore Barrel	**Descriptions By:** Will Stephens	
Rig Type: Geoprobe 6712 DT		

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
	1	0-4	2.7	2.9			Dark brown to black fine to medium SAND, little Silt, little fine to medium angular Gravel, red Brick, trace Slag, trace Ash, moist. 10YR 4/2 [FILL]	
5								
							Brown fine to medium SAND, little Silt, trace fine angular Gravel, loose, wet. 10 YR 3/2	
5							Black stained fine to medium angular GRAVEL, some fine to medium Sand, trace Silt, irridescent sheens, coal tar-like odor, wet. 10 YR 2/1	
	2	4-8	2.3	13.4			Black stained SILT lens, coal tar-like odor, trace irridescent sheen, wet.	
							Weathered and fractured Granitic GNEISS fragments, trace irridescent sheens, wet.	
0							Gray SILT, faint coal tar-like odor, wet.	
							Light gray to light brown fractured Granitic GNEISS, little fine to coarse Sand, trace Silt, trace dark brown to black NAPL blebs (1-2 mm diameter), coal tar-like odor, irridescent sheens, wet.	
10	3	8-12	1.2	17.5				
	4	12-12.5	NR	NA			No Recovery.	
-5							Refusal at 12.5' bgs.	
15								

Boring backfilled with bentonite chips.

Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level; NR= No Recovery. Attempted location 2 times due to refusal before encountering bedrock. Met refusal at 8.0' on first attempt, moved location ~ 1.5' southeast blind drilled to 8' bgs and encountered refusal at 12.5' bgs. All survey and elevation data referenced to NGVD 29.

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Date Start/Finish: 2/9/2016	**Northing:** 895611.0467	**Well/Boring ID:** **PDI-06-2016**
Drilling Company: Parratt Wolff, Inc.	**Easting:** 648534.8883	**Client:** Con Edison
Driller's Name: Mark Eaves	**Borehole Depth:** 22.5' bgs	**Location:** Former Pemart Ave. Peekskill, NY
Drilling Method: Direct Push	**Surface Elevation:** 7.92' AMSL	
Sampling Method: 4' MacroCore Barrel	**Descriptions By:** Will Stephens	
Rig Type: Geoprobe 6712 DT		

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
	1	0-4	2.6	2.9			Dark gray to black fine to medium SAND, little Silt, little fine to medium Gravel, trace red Brick, piece of steel cast iron pipe at 3.5' bgs, loose, irridescent sheens 2.3' to 2.6' bgs, moist. [FILL]	
5								
							Black fine SAND some Silt, trace red Brick, black staining, coal tar-like odor, irridescent sheens, wet. [FILL]	
5	2	4-8	2.1	3.8			Dark gray fine to medium angular GRAVEL, some fine to coarse Sand, black staining, coal tar-like odor, wet.	
0							Black stained coarse SAND, some fine to medium Gravel, trace Silt, loose, heavy sheens, coal tar-like odor, wet.	
							Dark gray fine SAND, some Silt, trace red Brick, trace irridescent sheens, wet.	
10	3	8-12	3.1	45.4			Dark brown to black WOOD, black staining from 10.3 to 10.6' bgs.	
							Gray to pink weathered Granitic GNEISS, fresh fractures, possible boulder, wet.	Boring backfilled with bentonite chips.
							Blue-gray SILT, little Clay, firm, nonplastic, moist. GLEY2 6/10G	
-5							Light brown coarse SAND, some weathered Rock fragments, wet. 10 YR 5/4	
	4	12-16	2.5	0.8			Light brown fine SAND, some to little fine to medium angular Gravel, trace Silt, wet. 10 YR 5/4	
15								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

All survey and elevation data referenced to NGVD 29.

Date Start/Finish: 2/9/2016	**Northing:** 895611.0467	**Well/Boring ID:** **PDI-06-2016**
Drilling Company: Parratt Wolff, Inc.	**Easting:** 648534.8883	**Client:** Con Edison
Driller's Name: Mark Eaves	**Borehole Depth:** 22.5' bgs	**Location:** Former Pemart Ave. Peekskill, NY
Drilling Method: Direct Push	**Surface Elevation:** 7.92' AMSL	
Sampling Method: 4' MacroCore Barrel	**Descriptions By:** Will Stephens	
Rig Type: Geoprobe 6712 DT		

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
							Light brown fine SAND, some to little fine to medium angular Gravel, trace Silt, wet. 10 YR 5/4	
-10	5	16-20	2.5	0.6			Light brown coarse SAND, some fine to medium angular Gravel, weathered Rock fragments, loose, wet. 10 YR 5/4	
20							Light brown dense fine SAND, trace fine angular Gravel, moist. 10 YR 5/4	
	6	20-22.5	1.4	0.0			Light brown to pink medium to coarse SAND, wet. 2.5 YR 5/6	
							Light brown weathered and fractured Granitic GNEISS. 2.5 YR 5/6	
-15							Refusal at 22.5' bgs.	
25								
-20								
30								
-25								

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All survey and elevation data referenced to NGVD 29.

Date Start/Finish: 2/9/2016 **Drilling Company:** Parratt Wolff, Inc. **Driller's Name:** Mark Eaves **Drilling Method:** Direct Push **Sampling Method:** 4' MacroCore Barrel **Rig Type:** Geoprobe 6712 DT	**Northing:** 895615.5632 **Easting:** 648554.3576 **Borehole Depth:** 9.3' bgs **Surface Elevation:** 7.75' AMSL **Descriptions By:** Will Stephens	**Well/Boring ID:** **PDI-07-2016** **Client:** Con Edison **Location:** Former Pemart Ave. Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
	1	0-4	1.9	0.0			Dark gray to dark brown fine SAND, little fine angular Gravel, little Silt, trace red Brick, trace Coal, loose, moist. 10 YR3/2 [FILL]	
5								
	2	4-8	2.2	0.0			Gray-brown fine SAND, some Silt, trace fine to medium angular Gravel, trace red Brick fragments, loose, wet. 10 YR 3/2 [FILL]	
5								
0								
	3	8-9.3	1.3	1.9			Gray-brown fine SAND, some Silt, trace fine angular Gravel, loose, wet.	
							Gray-brown fine SAND, some Silt, trace fine angular Gravel, very loose, trace irridescent sheens, coal tar-like odor, wet.	
							Weathered gray granitic GNEISS rock fragments, coal tar like odor, wet. 10 YR 6/4	
							Refusal at 9.3' bgs.	
10								
-5								
15								

Boring backfilled with bentonite chips.

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

All survey and elevation data referenced to NGVD 29.

Date Start/Finish: 2/10/2016 **Drilling Company:** Parratt Wolff, Inc. **Driller's Name:** Mark Eaves **Drilling Method:** Direct Push **Sampling Method:** 4' MacroCore Barrel **Rig Type:** Geoprobe 6712 DT	**Northing:** 895676.9745 **Easting:** 648500.4998 **Borehole Depth:** 8.0' bgs **Surface Elevation:** 7.47' AMSL **Descriptions By:** Will Stephens	**Well/Boring ID:** **PDI-08-2016** **Client:** Con Edison **Location:** Former Pemart Ave. Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10								
0								
	1	0-4	2.5	0.0			Dark brown to black fine to coarse SAND, trace fine to medium angular Gravel, trace Metal, trace red Brick, moist, loose. 2.5 Y 3/1 [FILL]	
							Red BRICK.	
5							Brown fine to medium SAND, some to little fine to medium angular Gravel, trace Silt, trace yellow Brick, moist. 2.5 Y 4/3 [FILL]	
							Brown fine GRAVEL, some coarse Sand, loose, wet.	Boring backfilled with bentonite chips.
5							Gray to pink medium to coarse angular GRAVEL, trace fine Sand, trace irridescent sheens, coal tar-like odor, wet.	
	2	4-8	2.9	2.1			Light brown fine SAND, trace fine angular Gravel, dense, wet.	
0							Gray dense SILT with weathered rock fragments, coal tar-like odor, trace irridescent sheens, trace brown NAPL blebs (~ 1 mm diameter), wet.	
							Light gray to pink weathered Granitic GNEISS fragments.	
							Refusal at 8.0' bgs.	
10								
-5								
15								

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All survey and elevation data referenced to NGVD 29.

Date Start/Finish: 2/9/2016
Drilling Company: Parratt Wolff, Inc.
Driller's Name: Mark Eaves
Drilling Method: Direct Push
Sampling Method: 4' MacroCore Barrel
Rig Type: Geoprobe 6712 DT

Northing: 895625.2735
Easting: 648571.7811

Borehole Depth: 11.1' bgs

Surface Elevation: 11.46' AMSL

Descriptions By: Will Stephens

Well/Boring ID: **PDI-09-2016**

Client: Con Edison

Location: Former Pemart Ave. Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0 / 10	1	0-4	1.4	0.0		Dark gray to dark brown fine SAND, little Silt, trace medium angular Gravel, trace red and yellow Brick, trace Glass, loose, moist. 10 YR 3/1 [Fill]	
5 / 5	2	4-8	1.6	0.0		Gray fine SAND, trace fine angular Gravel, loose, wet. 10 YR 5/1 [Fill]	Boring backfilled with bentonite chips.
10 / 0	3	8-11.1	3.0	1.9		Brown fine SAND, trace red Brick, trace fine angular Gravel, dense, wet. 10 YR 4/3 [Fill]	
						Light brown fine to medium SAND, trace fine to medium angular Gravel (weathered Quartzite), wet. 10 YR 6/6	
						Light brown to light gray medium to coarse SAND, some weathered Rock fragments (weathered Quartzite), wet. 10 YR 6/4	
15						Refusal at 11.1' bgs.	

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.

All survey and elevation data referenced to NGVD 29.

Date Start/Finish: 2/10/2016	**Northing:** NA	**Well/Boring ID:** **PDI-10-2016**
Drilling Company: Parratt Wolff, Inc.	**Easting:** NA	**Client:** Con Edison
Driller's Name: Mark Eaves	**Borehole Depth:** 12.0' bgs	**Location:** Former Pemart Ave. Peekskill, NY
Drilling Method: Direct Push	**Surface Elevation:** NA	
Sampling Method: 2"x4' Acetate Liners	**Descriptions By:** Will Stephens	
Rig Type: Geoprobe 6712 DT		

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
10 / 0								
5 / 5	1	0-4	1.8	0.0			Dark gray to black fine to coarse SAND, trace Silt, trace red Brick, trace Cinders, moist, [FILL] Dark brown fine to coarse SAND, some fine to medium angular Gravel, trace red Brick, wet at 3.5' bgs. [FILL]	
0 / 10	2	4-8	0.9	0.0			Brown fine SAND, some Silt, little fine to medium angular Gravel, becoming dark gray to black at 8.0' bgs, wet.	Boring backfilled with bentonite chips.
	3	8-12	1.6	0.4			Dark brown WOOD, trace brown NAPL blebs (~1-2 mm diameter), coal tar-like odor, wet. Dark gray medium to coarse SAND and fine to coarse angular GRAVEL, wet.	
-5 / 15							End of boring at 12.0' bgs.	

Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.
All survey and elevation data referenced to NGVD 29. Boring located 4.5' west/northwest of PDI-06, 3' east of the chain link fence, outside of the former holder footprint.

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Date Start/Finish: 2/10/2016 **Drilling Company:** Parratt Wolff, Inc. **Driller's Name:** Mark Eaves **Drilling Method:** Direct Push/Hollow Stem Auger **Sampling Method:** 4' MacroCore Barrel **Rig Type:** Geoprobe 6712 DT	**Northing:** NA **Easting:** NA **Borehole Depth:** 17.5' bgs **Surface Elevation:** NA **Descriptions By:** Will Stephens	**Well/Boring ID:** **PDI-11-2016** **Client:** Con Edison **Location:** Former Pemart Ave. Peekskill, NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0								
								Dark gray fine to medium SAND, trace red Brick, moist. [FILL]	
								Light brown fine to medium SAND, trace coarse Sand, loose, moist. 2.5 Y 5/3	
		1	0-4	2.0	0.0			Light brown medium to coarse SAND, trace fine to medium subangular Gravel, loose, moist. 2.5 Y 5/3	
5	-5							Black stained medium to coarse SAND, some fine to medium subangular Gravel, loose, coal tar-like odor, trace sheen, wet.	
		2	4-8	2.8	42.6			Black stained fine SAND, trace fine to medium angular Gravel, strong coal tar-like odor, abundant sheens, wet.	
								Blind drilled to 8.7' bgs.	Boring backfilled with bentonite chips.
								Dark gray fine to medium SAND, little subround fine to medium Gravel, black staining, coal tar-like odor, wet.	
								Light gray fine SAND, trace subround fine to medium Gravel, granitic Gneiss rock fragments, moist.	
10	-10	3	8.5-12.5	2.2	12.7			Black stained medium to coarse angular GRAVEL, trace sheens, abundant brown NAPL blebs, coal tar-like odor, wet.	
								Light gray fine to coarse angular GRAVEL (tightly packed weathered granitic Gneiss), little fine Sand, trace Silt, wet.	
								Light gray fine to medium SAND, trace fine angular Gravel, dense, wet.	
								Brown fine SAND, trace fine to medium angular Gravel, loose, wet.	
		4	12.5-16.5	2.7	0.0			Light brown medium to coarse SAND, some weathered granitic Gneiss fragments, dense, visable weathered biotite lenses, wet.	
15	-15								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.
All survey and elevation data referenced to NGVD 29. Boring located 10' north of PDI-06-2016, 14' east of the fenceline, and 3' inside of the former holder. Augered without sampling to 8.7' bgs after refusal with Geoprobe sampler at a depth of 9.7' bgs.

Date Start/Finish: 2/10/2016
Drilling Company: Parratt Wolff, Inc.
Driller's Name: Mark Eaves
Drilling Method: Direct Push/Hollow Stem Auger
Sampling Method: 4' MacroCore Barrel
Rig Type: Geoprobe 6712 DT

Northing: NA
Easting: NA
Borehole Depth: 17.5' bgs
Surface Elevation: NA
Descriptions By: Will Stephens

Well/Boring ID: **PDI-11-2016**
Client: Con Edison
Location: Former Pemart Ave. Peekskill, NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Analytical Sample	Geologic Column	Stratigraphic Description	Well/Boring Construction
	5	16.5-17.5	1.0	0.0			Light brown medium to coarse SAND, some weathered granitic Gneiss fragments, dense, visable weathered biotite lenses, wet.	Boring backfilled with bentonite chips.
							Refusal at 17.5' bgs.	
20 -20								
25 -25								
30 -30								

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Remarks: ags = above ground surface; bgs = below ground surface; NA = Not Applicable/Available; AMSL = Above Mean Sea Level.
All survey and elevation data referenced to NGVD 29. Boring located 10' north of PDI-06-2016, 14' east of the fenceline, and 3' inside of the former holder. Augered without sampling to 8.7' bgs after refusal with Geoprobe sampler at a depth of 9.7' bgs.

Date Start/Finish: 11/5/13-11/6/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895413.70
Easting: 648230.70
Casing Elevation: NA

Borehole Depth: 30' bss
Surface Elevation: -6.4

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-100**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	0	WOH WOH WOH WOH	0	NA		0-2' bss No recovery.	
		2	2-4'	0.3	WOH	0	0.0		Black SILT, some fine to medium Sand, trace Organics (wood, roots), loose, saturated. 2-4' bss Not enough sample for geotechnical analysis.	
5	-5	3	4-6'	2.0	1 1 WOH 1	1	0.0		4-5.8' bss Silt petroleum-like odor. Gray SILT, trace fine Sand, loose, saturated.	
		4	6-8'	1.4	WOH/2	0	0.0		Black SILT, some to little fine Sand and Organics, trace Sheen, loose, petroleum-like odor.	
		5	8-10'	1.7	2 3 4 2	7	0.2		Gray SILT, little to trace fine Sand, trace Clay, trace Wood, medium to coarse Gravel in shoe of splitspoon, nonplastic, saturated.	Borehole backfilled with cement/bentonite to grade.
10	-10	6	10-12'	2.0	WOH WOH WOH 1	0	16.3		Brown PEAT, trace Silt, sulfur-like odor, loose, moist.	
		7	12-14'	1.5	4 4 5 8	9	2.4			
15	-15	8	14-16'	2.0	1 WOH WOH WOH	0	0.0		Increasing SILT content with depth.	

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Client: Con Edison

Well/Boring ID: **PDI-SED-100**

Borehole Depth: 30' bss

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18'	1.8	WOH 1 WOH 1	1	0.0		Brown PEAT, trace Silt, sulfur-like odor, loose, moist. Gray to brown SILT, some brown Peat, trace fine Sand, Clay, and Organics, soft, nonplastic, moist.	
		10	18-20'	1.8	1 1 1 1	2	0.0			
20	-20	11	20-22'	1.5	6 1 1 1	2	0.0		Gray to brown SILT and PEAT, trace fine Sand, Clay, and Organics (wood and leaves throughout), loose, moist Below 20' bss lenses of Peat becoming thinner with depth.	
		12	22-24'	1.5	1 1 1 WOH	2	0.0		Gray SILT, little brown Peat and Clay, soft, nonplastic to slightly plastic, saturated.	Borehole backfilled with cement/bentonite to grade.
25	-25	13	24-26'	1.1	1 WOH 1 WOH	1	0.0		24-25.1' bss low plasticity	
		14	26-28'	2.0	WOH WOH WOH WOH	0	0.0		Gray SILT and CLAY, little Organics (roots, wood), trace fine Sand, sift, low plasticity, moist.	
		15	28-30'	1.8	1 2 2 2	4	0.0			
30	-30								END OF BOREHOLE 30' bss	
35	-35									

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 11/6/13-11/7/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895439.80
Easting: 648249.70
Casing Elevation: NA

Borehole Depth: 16' bss
Surface Elevation: -5.9

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-101**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	0.4	WOH WOH 2 1	2	0.0		Gray to black fine to medium GRAVEL and fine SAND, little Silt, trace Organics (wood, leaf litter), black staining, and sheen, saturated	
		2	2-4'	NA	1 WOH WOH WOH	0	NA		2-4' bss NO RECOVERY	
5	-5	3	4-6'	0.3	1 WOH WOH WOH	0	73.2		Black fine SAND, some to little Silt, little fine subangular Gravel, trace Organics (wood), loose, nonplastic, moderate sheen, coaltar-like odor, saturated.	
		4	6-8'	0.2	WOH WOH WOH WOH	0	66.7		Gray SILT, trace fine Sand and Clay, soft, saturated.	
		5	8-10'	2.0	WOH	NA	195		Gray SILT and fine SAND, trace fine subangular Gravel, Root scars, NAPL blebs, and sheen, coaltar-like odor, soft, nonplastic, saturated.	Borehole backfilled with cement/bentonite to grade.
10	-10	6	10-12'	1.4	WOH 12 8 4	20	61.8		10-11.1' bss sand lenses less than 0.1' thick Gray medium to coarse SAND, little fine Sand, trace fine Gravel, NAPL blebs, sheen and odor.	
		7	12-14'	0.4	13 3 2 1	5	27.2		12-12.4' bss less than 0.1' of trace brown Peat at the tip of shoe	
15	-15	8	14-16'	1.3	2 2 2 2	4	0.3		Brown organic PEAT, little Silt, trace fine Sand, wood, and leaf litter throughout, loose, moist. END OF BOREHOLE 16' bss	

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 11/11/13-11/12/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895496.20
Easting: 648134.60
Casing Elevation: NA

Borehole Depth: 30' bss
Surface Elevation: -8.1

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-102**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-1'	NA	WOH WOH	NA	NA		0-1' bss NO RECOVERY	
		2	1-3'	1.3	WOH WOH WOH WOH	0	3.6		Black SILT, some to little fine Sand, little Organics (wood, roots, leaf litter), nonplastic, soft, saturated. 1-3' bss trace Sheen	
		3	3-5'	1.6	WOH WOH WOH WOH	0	25.1		3-4.4' bss fuel-like Odor.	
5	-5	4	5-7'	1.2	7 5 5 4	10	0.2		Gray fine to medium SAND, trace Silt, loose, saturated.	
		5	7-9'	0.9	6 5 4 5	9	0.9			Borehole backfilled with cement/bentonite to grade.
10	-10	6	9-11'	2.0	12 7 7 8	14	0.2		Gray fine to medium SAND, trace Silt and fine subangular Gravel, loose, saturated.	
		7	11-13	1.1	3 2 2 1	4	0.0			
		8	13-15	1.5	6 4 2 2	6	0.0		Brown SILT, some mottled Clay, little to trace fine Sand, nonplastic, dense, moist.	
15	-15				4 4				Brown SILT, some mottled Clay, little to trace lenses (less than 0.1') of fine Sand, low plasticity, dense, moist.	

Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

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Client: Con Edison

Well/Boring ID: **PDI-SED-102**

Borehole Depth: 30' bss

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

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DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	9	15-17'	2.0	5 6	9	0.0		Brown SILT, some mottled Clay, little to trace lenses (less than 0.1') of fine Sand, low plasticity, dense, moist.	
	10	17-19'	1.7	3 4 17 18	21	0.0			
20 -20	11	19-21'	1.1	NA	NA	NA		19-21' bss Shelby tube collected.	
	12	21-23'	1.8	13 16 18 17	34	0.0		Brown Silty SAND, some Clay, nonplastic, stiff, moist. Gray SILT and CLAY, trace fine Sand, nonplastic to low plasticity, stiff, moist.	
	13	23-25'	1.9	NA	NA	NA		23-25' bss Shelby tube collected	
25 -25	14	25-27'	1.6	7 13 17 15	30	0.0		Gray SILT and CLAY, trace fine Sand, nonplastic to low plasticity, stiff, moist. Gray to gray brown SILT and CLAY, trace lenses of fine Sand, low plasticity, stiff, moist.	
	15	27-29'	1.2	13 13 15 13	28	0.0		Gray SILT, some Silty Sand, nonplastic, stiff, saturated.	
	16	29-30'	0.5	13 13	NA	0.0			
30 30								END OF BOREHOLE 30' bss	
35 -35									

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 11/21/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895535.70
Easting: 648171.00
Casing Elevation: NA

Borehole Depth: 17.0' bss
Surface Elevation: -4.9

Descriptions By: J. Oliver

Well/Boring ID: **PDI-SED-103**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	1.9	4 4 6 5	10	0.2		Dark gray SILT, trace fine Sand, very soft.	
									Black to dark brown at 1.7' bss fine SAND, trace organics (shell fragments), moderately dense to loose.	
		2	2-3'	NA	NA	NA	NA		WOOD	
		3	3-5'	0.0	WOH/2.0'	0	NA		3-5' bss NO RECOVERY	
5	-5	4	5-7'	1.4	WOH/2.0'	0	76.0 51.0		Black fine SAND and SILT, trace medium Sand, Organics (leaves, wood, plant material), and Sheens throughout splitspoon, loose, faint Odor.	
									Brown to dark brown PEAT.	
		5	7-9'	0.3	WOH/1.5' 1	NA				Borehole backfilled with cement/bentonite to grade.
10	-10	6	9-11'	1.6	1/1.0' 1/1.0'	NA	10.7		Dark gray to black fine SAND and SILT, little to trace Clay, trace Organics (wood pulp, leaves), soft to moderately dense, faint Odor.	
		7	11-13'	2.0	1 2 2 3	4	27.0 69.0		12.5' bss trace Slag and Fabric.	
									Gray to light gray fine to medium SAND, trace Silt, loose.	
		8	13-15'	1.0	7 10 10 12	20	6.8		Gray to light gray fine SAND, some Silt, trace medium Sand and medium Gravel, loose to moderately dense.	
15	-15	9	15-17'	1.0	NA	NA	0.7		Gray SILT and CLAY, trace Shells and fine Sand, low plasticity, soft to moderately stiff.	

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Client: Con Edison

Well/Boring ID: PDI-SED-103

Borehole Depth: 17.0' bss

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	9	15-17'	1.0	NA	NA	0.7		Gray SILT and CLAY, trace Shells and fine Sand, low plasticity, soft to moderately stiff.	Borehole backfilled with cement/bentonite to grade.
								END OF BOREHOLE 17.0' bss	

20 -20
25 -25
30 -30
35 -35

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 11/11/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895530.20
Easting: 648100.20
Casing Elevation: NA

Borehole Depth: 16' bss
Surface Elevation: -7.9

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-104**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	2.0	1 WOH WOH WOH	0	0.0		Black SILT, some fine Sand, little Organics (wood, leaf litter), soft, nonplastic, saturated.	
		2	2-4'	1.1	WOH WOH WOH WOH	0	102		Brown WOOD. 2-3.1' bss sheen and coaltar-like odor	
5	-5	3	4-6'	0.7	WOT	0	52.4		Gray medium SAND, some fine Sand, trace Silt, Sheen, and coaltar-like Odor, loose, nonplastic.	
		4	6-8'	0.8	WOH WOH 2 4	2	190		6-9.2' bss NAPL blebs present but decreasing with depth.	
		5	8-10'	1.2	6 6 6 6	12	65.3			Borehole backfilled with cement/bentonite to grade.
10	-10	6	10-12'	0.9	8 4 3 4	7	10.6		Gray medium SAND, some fine Sand, trace Silt and Sheen, loose, grainsize decreasing with depth, saturated.	
		7	12-14'	2.0	11 8 7 5	15	1.2			
15	-15	8	14-16'	1.8	3 4 2 2	6	0.7		Brown to brownish gray mottled SILT, some Clay, little to trace fine Sand, low plasticity, dense, moist. END OF BOREHOLE 16' bss	

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 11/13/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895592.70
Easting: 648080.90
Casing Elevation: NA

Borehole Depth: 22' bss
Surface Elevation: -6.9

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-105**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	0.2	WOT	0	0.0		WOOD in shoe. No Sample.	
		2	2-4'	0.9	WOT	0	0.0		Black SILT, some to little fine Sand, little Organics (wood, roots), nonplastic, loose, soft, saturated.	
5	-5	3	4-6'	0.7	WOT	0	0.2			
		4	6-8'	2.0	1 6 10 14	16	1.0		Brownish gray Sandy SILT, some Clay, little fine Sand, trace lenses of fine Sand, nonplastic, stiff, moist.	
		5	8-10'	1.5	17 21 21 18	42	0.0			Borehole backfilled with cement/bentonite to grade.
10	-10	6	10-12'	1.8	17 13 14 19	27	0.0		Brown Sandy SILT, some mottled Clay, little fine Sand (lenses less than 0.1' thick), nonplastic, dense, stiff, moist.	
		7	12-14'	1.5	8 8 12 14	20	0.0		Brown Sandy SILT, some gray mottled Clay, little fine Sand, trace Clay lenses, low plasticity to nonplastic, stiff, moist.	
15	-15	8	14-16'	1.5	7 12 14 13	26	0.0			

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Ended boring above 30' bss based on conversation with Project Manager (Jason Brien).
Unable to collect Shelby tube due to stiffness of lithology.

Client: Con Edison

Well/Boring ID: **PDI-SED-105**

Borehole Depth: 22' bss

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

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DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18	1.7	5 5 11 14	16	0.0		Brown Sandy SILT, some gray mottled Clay, little fine Sand, trace Clay lenses, low plasticity to nonplastic, stiff, moist. 16-18' bss increased presence of gray mottled Clay.	
		10	18-20	1.3	13 21 22 18	43	0.0		Brown SILT, some gray mottled Clay, trace fine Sand, interbedded layers of Silt and Clay, nonplastic, stiff, moist.	Borehole backfilled with cement/bentonite to grade.
20	-20	11	20-22	1.8	20 21 23 25	44	0.0		20-22' bss Gray Clay becomes slightly plastic.	
									END OF BOREHOLE 22' bss	
25	-25									
30	-30									
35	-35									

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Ended boring above 30' bss based on conversation with Project Manager (Jason Brien). Unable to collect Shelby tube due to stiffness of lithology.

Date Start/Finish: 11/14/13-11/20/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895675.40
Easting: 648169.40
Casing Elevation: NA

Borehole Depth: 47.7' bss
Surface Elevation: -3.2

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-106**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	0.3	1 1 WOH WOH	1	7.8		Gray brown SILT and fine SAND, trace medium Sand, trace organics (wood), soft, nonplastic, slight odor, saturated.	
		2	2-4'	0.4	1 WOH 1 WOH	1	51.2		Gray medium SAND, some fine Sand, little Silt, coaltar-like Odor, NAPL Blebs, and Sheen, nonplastic, loose, saturated.	
5	-5	3	4-6'	0.2	1 1 1 WOH	2	42.1		Gray to black fine to medium GRAVEL, trace Silt, trace NAPL Coating, Sheen, and coaltar-like Odor, loose, saturated.	
		4	6-8'	1.3	3 3 3 5	6	0.9		Gray to brown Sandy SILT, some stiff Clay, trace fine Sand, trace fine to medium subangular Gravel, nonplastic, stiff, moist.	
		5	8-10'	1.7	6 8 7 12	15	1.1		8-10' bss Sandy lenses becoming increasingly saturated with depth.	Borehole backfilled with cement/bentonite to grade.
10	-10	6	10-12'	1.1	12 12 15 12	27	0.6		Brown SILT, some Clay, little fine to medium Sand lenses (less than 0.1' thick), slightly plastic to nonplastic, stiff, saturated.	
		7	12-14'	0	14 16 21 29	37	NA		12-14' bss NO RECOVERY	
15	-15	8	14-16'	1.7	15 17 18 20	35	0.0		Brown SILT and CLAY, trace lenses of fine Sand, low plasticity, stiff, moist.	

Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

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Client: Con Edison

Well/Boring ID: **PDI-SED-106**

Borehole Depth: 47.7' bss

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		9	16-18'	1.3	13 18 27 28	45	0.0		Brown SILT and CLAY, trace lenses of fine Sand, low plasticity, stiff, moist. 16-18' bss interbeds of Silt and Clay	
		10	18-20'	0.8	NA	NA	NA		Shelby tube collected to 18.8' bss. Drilled to 20' bss.	
20	-20									
		11	20-22'	2.0	13 16 10 10	26	0.0		Brown SILT, some to little Clay, trace fine Sand, nonplastic, stiff. Gray SILT and CLAY, trace fine Sand, low plasticity, soft, moist.	
		12	22-24'	2.0	7 5 6 7	11	0.0			
25	-25	13	24-26'	1.3	8 15 10 7	25	0.0			
		14	26-28'	1.1	NA	NA	NA		Shelby tube collected.	Borehole backfilled with cement/bentonite to grade.
		15	28-30'	1.6	4 7 7 8	14	0.0		Gray SILT and CLAY, trace fine Sand, low plasticity, soft, moist.	
30	-30	16	30-32'	1.5	4 4 7 7	11	0.0			
		17	32-34'	1.6	3 7 10 8	17	0.0			
35	-35	18	34-36'	1.7	4 4 7 6	11	0.0			

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Client: Con Edison

Well/Boring ID: **PDI-SED-106**

Borehole Depth: 47.7' bss

Site Location:
Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		19	36-38'	1.7	8 4 8 8	12	0.0		Gray SILT and CLAY, trace fine Sand, low plasticity, soft, moist. 36-38' bss Sand lenses (less than 0.1' thick) moist to wet.	
		20	38-40'	1.6	12 9 11 12	20	0.0		38-40' bss Lenses of brown fine SAND (less than 0.1' thick) increasing with depth.	
40	-40	21	40-42'	1.6	16 15 15 18	30	0.0		Gray SILT, some to little Clay, little fine Sand, nonplastic, moist to wet. Brown Sandy SILT, little fine Sand, trace Clay, nonplastic, stiff, wet.	Borehole backfilled with cement/bentonite to grade.
		22	42-43.7'	1.7	6 9 35	44	0.0		Gray CLAY, little to trace Silt, plastic, stiff, moist. Brown Sandy SILT, little to some fine Sand, nonplastic, stiff, wet.	
45	-45	23	43.7-47.7'	0.6	50/0.2 NA	NA	NA		Brown weathered BEDROCK (banded gneiss fragments), some fine to medium Sand, loose, saprolitic pyrite inclusions, moist to wet. Weathered brocken fragments of banded Granitic GNEISS (K-spar, biotite, pyrite inclusions).	
									END OF BOREHOLE 47.7' bss	
50	-50									
55	-55									

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 11/21/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895705.70
Easting: 648092.90
Casing Elevation: NA

Borehole Depth: 4.0' bss
Surface Elevation: -5.4

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-107**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	0	WOT/2'	0	0.0		0-2' bss NO RECOVERY. Trace Sheen on splitspoon.	
		2	2-4'	2.0	2 2 3 6	5	67.5 3.8 0.9		Gray to black SILT and fine SAND, some medium to coarse Sand, trace Organics, Sheen, black Staining, and coaltar-like Odor, loose, saturated. Gray SILT and CLAY, trace fine Sand and Organics (wood), low plasticity, soft, moist. Brown to gray brown Sandy SILT, little to trace fine sand, nonplastic, moist to saturated. END OF BOREHOLE 4' bss	Borehole backfilled with cement/bentonite to grade.
5	-5									
10	-10									
15	-15									

Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

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Date Start/Finish: 11/2/18
Drilling Company: Parratt-Wolff
Driller's Name: Rick Nolvka, Jolan Price
Drilling Method: Vac Truck, HSA, HQ Coring
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split Spoon

Northing: 895713.09541
Easting: 648440.70280
Casing Elevation: NA

Borehole Depth: 11.3 ft bgs.
Surface Elevation: 7.55266 ft. amsl.

Descriptions By: Evan Green

Well/Boring ID: **PDB-118**

Client: Consolidated Edison

Location: 189 N. Water St. Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	NA	NA	NA	NA		Used Vacuum Truck to Hand Clear to 5'	Borehole backfilled with soil cuttings from 0-0.5' bgs.
5	-5	1	5-6	0.8	36 32	68	0.0		Brown fine GRAVEL, sub angular - angular, little silt, medium dense, moist Light brown very fine SAND, medium dense, moist	
		2	6-8	0	50/3	50	0.0 NA		No Recovery, granitic gneiss chips in shoe of split spoon Top of Bedrockl at 8.3' bgs.	Borehole backfilled with bent-cement grout 0.5-11.3' bgs.
									Start of coring run #1 at 8.3 ft. bgs.	
10	-10	3	8.3 11.3	2.1	NA NA NA	NA	NA 0.0 0.0		Pink GRANITIC GNEISS, medium to coarse grained, fresh weathering, hard to very hard, unfractured, thin foliation	
									End of coring run #1 at 11.3 ft. bgs.	
15	-15									

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25".

Date Start/Finish: 11/5/18 - 11/6/18
Drilling Company: Parratt-Wolff
Driller's Name: Rick Nolvka and Nate Baker
Drilling Method: Vac Truck, HSA and Mud Rotary
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split Spoon

Northing: 895623.15944
Easting: 648523.64383
Casing Elevation: NA

Borehole Depth: 36.0 ft bgs.
Surface Elevation: 8.11406 ft. amsl.

Descriptions By: Evan Green

Well/Boring ID: **PDB-119**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	NA	NA	NA	NA		Used Vacuum Truck to Hand Clear to 5 ft. bgs.	Borehole backfilled with soil cuttings from 0-0.5' bgs.
5	-5	1	5-6	0.5	1 1	2	0		Light borwn, coarse SAND, loose, wet	
		2	6-8	0.5	1 2 5 2	7	0 0		Grey SAND, fine-medium, little coarse sand, trace woody debris, loose, wet	
		3	8-10	1.75	2 3 2 4	5	0 0		Light greenish gray fine GRAVEL, subangular, some coarse sand, trace silt, loose, wet	Borehole backfilled with bent-cement grout 0.5-36' bgs.
10	-10	4	10-12	1.8	8 18 27 18	45	0 0		Same as above	
		5	12-14	0.8	12 17 15 15	32	0 0.1		Light brown SAND, very fine - fine, some coarse sand, little fine gravel, sub angular, loose - medium dense, wet,	
15	-15	6	14-16	0.75	21 31 10 10	41	0.2 0.1		Orangish brown SAND, very fine - fine, little coarse sand, little fine gravel, sub angular - angular, very dense, moist	

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25".

Client: Consolidated Edison

Well/Boring ID: **PDB-119**

Borehole Depth: 36.0 ft bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		7	16-18	1.25	10 12 14 18	26	0 0.2		Orangish yellow fine SAND, little coarse sand, sub angular, very dense, moist	
		8	18-20	0.8	24 50/5	NA	0.3 0		Light orangish yellow with tan streaks SAND, medium - coarse, some fine sand, very dense, mosit	
20	-20	9	20-22	1.4	12 37 50/4	NA	0.1 0.2		Yellowish orange coarse SAND, little sand fine - medium, dense, moist	
		10	22-24	0.4	50/4	NA	0.3 0.3		Reddish orange SAND, fine - medium, some coarse sand, trace fine gravel, angular - sub angular, dense, moist - wet	
25	-25	11	24-26	1.5	13 19 50/5	NA	0.3 0.8		Orangish tan fine SAND, some coarse sand, little fine gravel, sub angular, dense - very dense, moist - wet Light brown SAND, very fine - fine, little coarse sand, very dense, moist - wet	Borehole backfilled with bent-cement grout 0.5-36' bgs.
		12	26-28	0.9	19 50/5	NA	1.5 0.7		Light brown, mottled black SAND fine - medium, little coarse sand, medium dense, wet Switched from HSA to mud rotary at 26.0 ft. bgs.	
		13	28-30	0.5	50/5	NA	0.4 0.1		Light brown mottled black coarse SAND, trace fine gravel, sub angular, medium dense - dense, wet	
30	-30	14	30-32	0.5	50/5	NA	0.1 0.3		Orangish brown, mottled black coarse SAND, little fine gravel, sub angular, medium dense - dense, wet	
		15	32-34	0.5	50/5	NA	0.1 0.2		Light tan, coarse SAND, some sand very fine - fine, medium dense, wet	
35	-35	16	34-36	0.3	50/3	NA	0.2 0.1		Tannish brown coarse SAND, some sand very fine - fine, trace silt, medium dense, wet End of borehole at 36.0 ft. bgs.	

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Date Start/Finish: 11/6/18 - 11/7/18
Drilling Company: Parratt Wolff
Driller's Name: Rick Nolvka and Nate Baker
Drilling Method: Vac Truck, HSA, and HQ Coring
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split Spoon

Northing: 895684.62750
Easting: 648459.15247
Casing Elevation: NA

Borehole Depth: 24.5 ft. bgs.
Surface Elevation: 7.91896 ft. amsl

Descriptions By: Evan Green

Well/Boring ID: **PDB-120**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	NA	NA		NA		Used Vacuum Truck to Hand Clear to 5 ft. bgs.	Borehole backfilled with soil cuttings from 0-0.5 ft. bgs.
5	-5	1	5-6	0	1 1	NA	NA		No Recovery	
		2	6-8	1.0	1 2 2 1	4	0.3 0.2		Gray SILT and CLAY, medium plasticity, little coarse sand, little fine gravel, sub angular, trace organic material (roots), soft - medium dense, wet	
		3	8-10	1.0	10 12 9 22	21	0.3 0.2		Same as above Light gray fine GRAVEL, sub angular, some medium sand, loose, wet	Borehole backfilled with bent-cement grout 0.5-24.5 ft. bgs.
10	-10	4	10-12	1.0	6 5 24 25	29	0.4 0.1		Gray fine GRAVEL, sub angular, little sand, fine - medium, loose, wet Orangish brown SAND, very fine - fine, little fine gravel, sub angular - angular, little pyrite nodules, medium dense - dense, wet	
		5	12-14	0.75	23 12 50/4	NA	0.1 0.0		Brown medium SAND, some sand very fine - fine, little fine gravel sub anguler - angular, little pyrite nodules, medium dense, moist - wet	
15	-15	6	14-16	0.5	26 13 13 24	26	0.0 0.0		Brown SAND very fine - fine, some silt and clay, low plasticty, trace fine gravel, sub angular, trace pyrite nodules, medium dense moist-wet	

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Client: Consolidated Edison

Well/Boring ID: **PDB-120**

Borehole Depth: 24.5 ft. bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	7	16-18	1.25	27 28 40 50/4	68	0.1 0.2		Brown SAND very fine - fine, some black mica, platty, friable, dense, moist	
	8	19-20	0.8	17 50/5	NA	0.0 0.0		Light brown SAND, very fine - fine, some black mica, platty, friable, little silt, medium dense, mosit	
20 -20	9	20 21.5	0	50/3	NA	NA		No recovery, black mica schist in shoe of split spoon Top of Bedrock at 20.3 ft. bgs. Start of coring run #1 at 21.5 ft. bgs.	Borehole backfilled with bent-cement grout 0.5-24.5 ft. bgs.
	10	21.5 24.5	3.0	NA	NA	0.0		Black and silver MICA SCHIST, consisting predominately of mica with some quartz and trace potassium feldspar, fine - medium grained, fresh weathering, hard - very hard. very thin foliation, unfractured	
25 -25								End of coring run #1 at 24.5 ft. bgs.	
30 -30									
35 -35									

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Date Start/Finish: 11/7/18 - 11/8/18
Drilling Company: Parratt Wolff
Driller's Name: Rick Nolvka and Nate Baker
Drilling Method: Vac Truck, HSA, and HQ Coring
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split Spoon

Northing: 895670.93555
Easting: 648477.31050
Casing Elevation: NA

Borehole Depth: 19.4 ft. bgs.
Surface Elevation: 7.94505 ft. amsl.

Descriptions By: Evan Green

Well/Boring ID: **PDB-121**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	NA	NA	NA			Used Vacuum Truck to Hand Clear to 5 ft. bgs.	Borehole backfilled with soil cuttings from 0-0.5 ft. bgs.
5	-5	1	5-6	0.8	1 1	2	377.1		Coal Tar	
		2	6-8	0.6	4 2 3 3	5	14.8 22.7		Dark gray, fine SAND, some silt, soft, moist - wet, coal tar like odor, sheen across sample	
		3	8-10	1.5	16 19 28 32	47	75.3 44.8		Dark brown SILT, some fine gravel, sub angular - angular, trace organic material (wood), soft, wet, heavy sheen across length of sample, petroleum like odor	Borehole backfilled with bent-cement grout 0.5-19.4 ft. bgs.
10	-10	4	10-12	1.0	4 13 22 20	35	50.7 38.9		Same as above, sheen across length of sample, petroleum like odor	
		5	12-14	1.5	16 18 40 42	58	131.8 256.4		Light gray fine GRAVEL, some silt, loose, wet, sheen across length of sample, very heavy petroleum like odor, staining at 14 ft. bgs.	
15	-15	6	14-16	0.5	47 22 22 50/3	44	107.1 299.8		Greenish gray very fine SAND, little fine gravel, sub angular, dense, wet Green highly weathered BEDROCK consisting of quartz and mica	

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Client: Consolidated Edison

Well/Boring ID: **PDB-121**

Borehole Depth: 19.4 ft. bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	7	16-16.4	0	50/2	NA	NA		No recovery, granitic gneiss chips in the shoe of the split spoon	
	8	16.4 19.4	2.79	NA	NA	0.0		Gray, pink and white GRANITIC GNEISS, consisting predominately of quartz with little potassium feldspar, little hornblende, trace calcite, and trace mica, fresh weathering state, hard, thin - medium foliation, lightly fractured Top of Bedrock at 16.2 ft. bgs. Start of coring run #1 at 16.4 ft. bgs.	Borehole backfilled with bent-cement grout 0.5-19.4 ft. bgs.
								End of coring run @1 at 19.4 ft. bgs.	
20 -20									
25 -25									
30 -30									
35 -35									

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Date Start/Finish: 11/8/18 - 11/9/18
Drilling Company: Parratt - Wolff
Driller's Name: Rick Nolvka and Nate Baker
Drilling Method: Vac Truck, HSA, HQ Coring
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split spoon

Northing: 895655.29248
Easting: 648489.33648
Casing Elevation: NA

Borehole Depth: 30.6 ft. bgs.
Surface Elevation: 7.75779 ft. amsl.

Descriptions By: Evan Green

Well/Boring ID: **PDB-122**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	NA	NA	NA	NA		Used Vacuum Truck to Hand Clear to 5 ft. bgs.	Borehole backfilled with soil cuttings from 0-0.5 ft. bgs.
5	-5	1	5-6	0.75	3 8	11	186.7		Black SILT, little fine gravel, sub angular, little coarse sand, coal tar like odor	
		2	6-8	0.9	3 11 12 10	23	587.2 600.4		Black SILT, little sand, medium to coarse, soft, wet, sheen across sample length, petroleum like odor	
		3	8-10	0.9	13 50/4	NA	193.7 386.1		Black fine GRAVEL, sub angular - angular, some sand, medium - coarse, loose, wet, black staining and sheen across sample length, petroleum like odor Auger refusal at 8.9 ft. bgs.	Borehole backfilled with bent-cement grout 0.5-30.6 ft. bgs.
10	-10	4	10-12	NA	NA NA NA NA	NA	NA NA		Black and silver MICA SCHIST (Boulder) Cored through end of a boulder at 10.4 ft. bgs.	
		5	12-14	0.6	8 13 11 14	24	38.6 100.5		Light gray fine GRAVEL, loose, wet, sheen across sample length Dark gray fine SAND, little coarse sand, loose - medium dense, wet, sheen across sample length	
15	-15	6	14-16	1.0	9 19 25 30	44	30.9 33.7		Light gray coarse SAND, some fine gravel, sub angular, loose, wet, sheen across interval, staining at 14.5 ft. bgs. Light brown and gray SAND, very fine - fine, little silt, medium dense, moist - wet	

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Client: Consolidated Edison

Well/Boring ID: **PDB-122**

Borehole Depth: 30.6 ft. bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		7	16-18	1.1	11 11 11 40	22	9.0 7.4		Light brown very fine SAND, medium dense - dense, moist - wet	
		8	18-20	0.3	50/3	NA	20.7 14.0		Light brown fine GRAVEL, little coarse sand, loose, wet	
20	-20	9	20-22	1.2	29 48 50/4	MA	5.3 18.7		Tannish brown coarse SAND, little fine sand, dense, moist - wet Dark brown SAND, very fine - fine, dense, moist Light tannish brown coarse SAND, dense, wet	
		10	22-24	0.3	50/3	NA	12.4 9.8		Pinkish tan coarse SAND, little sand very fine - fine, little silt, dense, wet	Borehole backfilled with bent-cement grout 0.5-30.6 ft. bgs.
25	-25	11	24-26	0.2	50/2	NA	29.7 9.7		Tannish brown coarse SAND, little sand very fine - fine, trace silt, trace fine gravel, dense, wet	
		12	26 27.6	0.2	50/2	NA	6.4 6.4		Light brown coarse SAND, some sand fine - medium, dense, wet Top of bedrock at 27.6 ft. bgs. Start of coring run #1 at 27.6 ft. bgs.	
30	-30	13	27.6 30.6	2.33	NA	NA	0.0		Light gray, dark gray, and light pink, GRANITIC GNEISS, consisting predominitely of quartz and plagioclase feldspar, little potassium feldspar, hard, thin - medium foliation, moderately - intensely fractured, moderately weathered	
35	-35								End of coring run #1 at 30.6 ft. bgs.	

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Date Start/Finish: 11/12/18 - 11/14/18
Drilling Company: Parratt-Wolff
Driller's Name: Rick Nolvka and Jolan Price
Drilling Method: Vac Truck, HSA, Mud Rotary
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split Spoon

Northing: 895631.75936
Easting: 648542.74104
Casing Elevation: NA

Borehole Depth: 48.0 ft. bgs.
Surface Elevation: 8.08490 ft. amsl.

Descriptions By: Evan Green

Well/Boring ID: **PDB-124**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	na	NA	NA	NA		Used Vacuum Truck to Hand Clear to 5 ft. bgs.	Borehole backfilled with soil cuttings from 0-0.5 ft. bgs.
5	-5	1	5-6	0.3	4 3	7	0.1		Dark gray fine GRAVEL, sub rounded, little medium sand, loose, wet	
		2	6-8	0	50/3	NA	NA NA		No recovery	
		3	8-10	0.3	8 8 7 6	15	0.8 0.8		Light brown coarse SAND, some fine sand, trace fine gravel, dense, wet	Borehole backfilled with bent-cement grout 0.5-48.0 ft. bgs.
10	-10	4	10-12	1.0	3 7 8 13	15	0.3 0.1		Dark brown SAND, very fine - fine, trace coarse sand, dense, wet Tannish brown SAND, fine - medium, little coarse sand, dense, moist	
		5	12-14	0.7	40 50/3	NA	0.1 0.1		Brownish gray medium SAND, trace coarse sand, dense, wet	
15	-15	6	14-16	0.8	30 50/4	NA	0.1 0.0		Tan coarse SAND, some sand, fine - medium, dense - very dense, moist	

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Client: Consolidated Edison

Well/Boring ID: **PDB-124**

Borehole Depth: 48.0 ft. bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		7	16-18	0.9	16 50/4	NA	0.1 0.1		Yellowish orange SAND, very fine - fine, little sand medium - coarse, dense, moist - wet	
		8	18-20	0.7	40 50/5	NA	0.2 0.3		Yellowish orange coarse SAND, little sand very fine - fine, dense - very dense, moist - wet	
20	-20	9	20-22	1.1	22 30 50/4	NA	0.2 0.3		Same as above	
		10	22-24	1.0	33 50/4	NA	0.1 0.1		Orangish yellow coarse SAND, little fine sand, very dense, moist - wet	
25	-25	11	24-26	0.8	25 50/4	NA	0.1 0.0		Same as above	
		12	26-28	0.7	43 50/3	NA	0.3 0.1		Same as above	Borehole backfilled with bent-cement grout 0.5-48.0 ft. bgs.
		13	28-30	0.8	38 50/3	NA	0.2 0.4		Yellowish orange coarse SAND, little fine sand, little fine gravel, dense, wet	
30	-30	14	30-32	0.8	50 50/4	NA	0.4 0.2		Yellowish tan coarse SAND, some sand fine - medium, very dense, most	
		15	32-34	0.4	50/4	NA	0.1 0.1		Light brown coarse SAND, little fine sand, medium dense - dense, wet Begin mud rotary drilling from 32.0 ft. bgs.	
35	-35	16	34-36	0.5	50/5	NA	0.2		Light brown coarse SAND, little sand fine - medium, dense, wet	

ARCADIS Design & Consultancy for natural and built assets

Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Client: Consolidated Edison

Well/Boring ID: **PDB-124**

Borehole Depth: 48.0 ft. bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		17	36-38	0.5	50/5	NA	0.1 0.1		Light brown coarse SAND, some fine sand, dense, wet	
		18	38-40	0.4	50/4	NA	0.0 0.0		Light brown, dark brown in part coarse SAND, trace fine sand, dense, wet	
40	-40	19	40-42	0.4	50/4	NA	0.0 0.0		Dark brown coarse SAND, little sand fine - medium, trace fine gravel, dense, wet	
		20	42-44	0	50/2	NA	NA NA		No recovery	Borehole backfilled with bent-cement grout 0.5-48.0 ft. bgs.
45	-45	21	44-46	1.2	35 30 50/4	NA	0.0 0.0		Tannish brown coarse SAND, little sand fine - medium, dense, moist - wet	
		22	46-48	0.4	50/4	NA	0.0 0.0		Light brown, dark brown in part coarse SAND.some fine sand, dense, moist - wet	
50	-50								End of borehole at 48.0 ft. bgs.	
55	-55									

ARCADIS Design & Consultancy for natural and built assets

Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Date Start/Finish: 11/19/18 - 11/20/18
Drilling Company: Parratt-Wolff
Driller's Name: Rick Nolvka and Jamie Allman
Drilling Method: Vac Truck, HSA, HQ Coring
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split Spoon

Northing: 895676.9745
Easting: 648500.4998
Casing Elevation: NA

Borehole Depth: 14.5 ft. bgs.
Surface Elevation: 7.47 ft. amsl

Descriptions By: Evan Green

Well/Boring ID: **PDB-125**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	NA	NA	NA	NA	NA	NA		Used Vacuum Truck to Hand Clear to 5 ft. bgs.	Borehole backfilled with soil cuttings from 0-0.5 ft. bgs.
5	-5	1	5-6	0.4	6 20	26	0		Light brown fine GRAVEL, some coarse sand, little sand very fine - fine, medium dense, wet	
		2	6-8	1.5	20 26 23 19	49	0 0		Same as above Light gray fine GRAVEL, sub rounded, some sand, very fine - fine, dense, wet	Borehole backfilled with bent-cement grout 0.5-14.5 ft. bgs.
		3	8-10	0.9	39 50/5	NA	0 0.5		Dark brown coarse SAND, little fine gravel, sub angular, trace brick fragments, medium dense, moist - wet Tan SAND, very fine - fine, little fine gravel, sub angular - angular, medium dense, wet	
10	-10	4	10 10.4	0.4	50/4	NA	0.3		Light brown SAND, very fine - fine, little coarse sand, dense, moist - wet, granitic gneiss chips in the shoe of the split spoon Top of Bedrock at 10.5 ft. bgs. Start of coring run #1 at 11.5 ft. bgs.	
		5	11.5 14.5	2.29	NA	NA	ND		Light gray, dark gray, and pink GRANITIC GNEISS, consisting primarily of quartz, plagioclase feldspar, little potassium feldspar, trace hornblende, hard, medium foliation, moderately fractured, moderately weathered	
15	-15								End of coring run #1 at 14.5 ft. bgs.	

ARCADIS Design & Consultancy for natural and built assets

Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Date Start/Finish: 11/20/18 - 11/21/18
Drilling Company: Parratt - Wolff
Driller's Name: Rick Nolvka and Jamie Allman
Drilling Method: Vac Truck, HSA, HQ Coring
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split Spoon

Northing: 895713.09541
Easting: 648440.70280
Casing Elevation: NA

Borehole Depth: 12.5 ft. bgs.
Surface Elevation: 7.55266 ft. amsl

Descriptions By: Evan Green

Well/Boring ID: **PDB-126**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0								Used Vacuum Truck to Hand Clear to 5 ft. bgs.	
		NA	NA	NA	NA	NA	NA			
5	-5	1	5-6	0.7	3 1	4	1.9		Brown medium SAND, some silt, little fine gravel, angular - sub angular, soft - medium dense, wet, sheen across sample	
		2	6-8	1.1	10 19 50/1	NA	0.5 1.8		Brown SILT, some sand medium - coarse, trace fine gravel, sub angular, coal tar at 7 ft. bgs.	
		3	8 - 9.5	0	50/1	NA			No recovery, mica schist in shoe of the split spoon Top of bedrock at 8.5 ft. bgs. Start of coring run #1 at 9.5 ft. bgs.	
10	-10	4	9.5-12.5	1.65		NA			Black and silver MICA SCHIST, containing predominately of mica, with little quartz, fine grained, intensely weathered, medium hard - hard, very thin foliation, intensely fractured	
									End of coring run #1 at 12.5 ft. bgs.	
15	-15									

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25".

Date Start/Finish: 10/31/18
Drilling Company: Parratt - Wolff
Driller's Name: Rick Nolvka and Jolan Price
Drilling Method: Vac Truck and HSA
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split spoon

Northing: 895650.23829
Easting: 648505.47260
Casing Elevation: NA

Borehole Depth: 32.0 ft. bgs.
Surface Elevation: 7.70764 ft. amsl.

Descriptions By: Evan Green

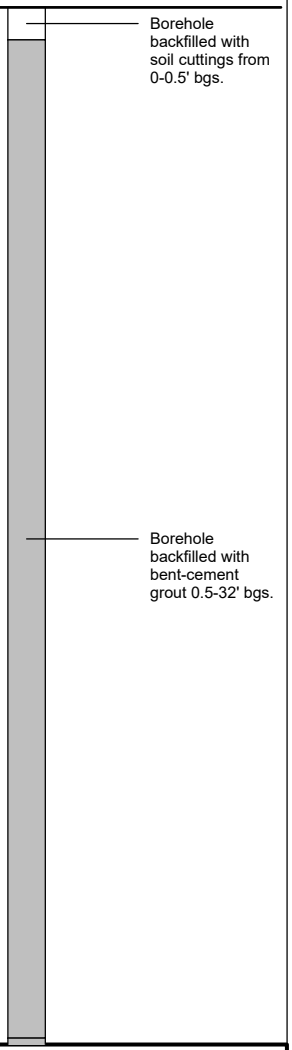
Well/Boring ID: **PDB-127**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0	NA	na	NA	NA	NA	NA		Used Vacuum Truck to Hand Clear to 5 ft. bgs.
5	-5	1	5-6	1.2	9 5	14	0.2		Brown fine GRAVEL, sub angular, little sand fine - medium, little silt, loose, wet
		2	6-8	0.75	5 3 1 3	4	0.5 3.4		Brown SILT, some medium sand, trace fine gravel, sub angular, soft, wet
		3	8-10	1.75	9 9 12 18	21	3.8 4.9		Brown fine GRAVEL, sub angular, little sand fine - medium, little silt, loose, wet, sheen over interval
10	-10								Light orangish brown SAND, very fine - fine, little sand medium - coarse, dense, moist
		4	10-12	1.25	2 9 11 10	20	0.5 1.0		Orangish brown SAND, very fine - fine, little silt, little medium sand, dense, moist
		5	12-14	0.5	10 15 14 14	29	1.3 0.8		Orangish brown, mottled gray SILT, some sand very fine - fine, dense, moist
15	-15	6	14-16	1.5	8 8 14 17	22	1.7 1.0		Orangish brown SILT, little sand very fine - fine, dense, moist

Well/Boring Construction



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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25".

Client: Consolidated Edison

Well/Boring ID: **PDB-127**

Borehole Depth: 32.0 ft. bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		7	16-18	0.2	28 33 31 35	64	1.8 1.8		Same as above. Black gravel fine - medium, sub angular in shoe of the split spoon	
		8	18-20	1.6	13 15 37 40	52	0.5 1.6		Light orangish brown SAND, medium - coarse, little fine sand, medium dense, moist	
20	-20	9	20-22	1.3	28 41 50/3	NA	0.7 0.3		Orangish brown SAND, medium - coarse, some fine sand, medium dense, moist - wet	
		10	22-24	0.9	46 50/3	NA	1.6 0.5		Light brown SAND, fine - medium, some silt and clay, low plasticity, loose - medium dense, moist Light yellowish orange coarse SAND, sub angular - angular, little fine sand, medium dense, wet	
25	-25	11	24-26	0.9	14 50/4	NA	0.5 0.2		Orangish brown medium SAND, some sand very fine - fine, little silt and clay, low plasticity, medium dense, moist Light yellowish orange coarse SAND, sub angular, some fine sand, medium dense - dense, wet	Borehole backfilled with bent-cement grout 0.5-32' bgs.
		12	26-28	0.9	21 50/4	NA	7.7 2.3		Light brown SAND, fine - medium, some coarse sand, dense, moist Yellowish orange coarse SAND, sub angular, little sand fine - medium, medium dense, mosit - wet	
		13	28-30	0.4	50/4	NA	2.5 1.7		Light orangish brown medium SAND, some coarse sand, little fine sand, medium dense - dense, mosit	
30	-30	15	30-32	0.4	50/4	NA	1.8 1.3		Light yellowish orange coarse SAND, sub angular, little sand fine - medium, medium dense, moist - wet	
35	-35									

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Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25".

Date Start/Finish: 11/15/18
Drilling Company: Parratt-Wolff
Driller's Name: Rick Nolvka and Jolan Prive
Drilling Method: Vac Truck and HSA
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split Spoon

Northing: 895611.59437
Easting: 648538.80604
Casing Elevation: 7.64824 ft. amsl.

Borehole Depth: 28.0 ft. bgs.
Surface Elevation: 7.92070 ft. amsl.

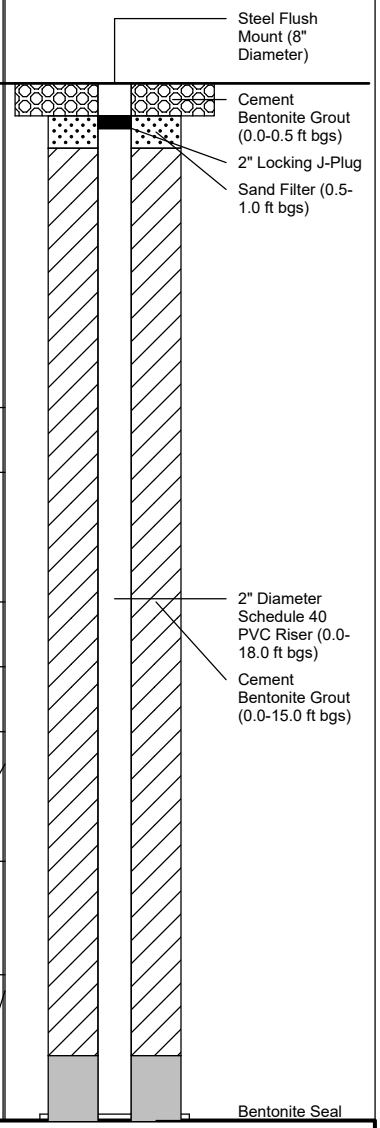
Descriptions By: Evan Green

Well/Boring ID: **TW-1**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0	NA		NA	NA	NA	NA		Used Vacuum Truck to Hand Clear to 5 ft. bgs.
5	-5	1	5-6	0.3	2 3	5	0		Gray fine GRAVEL, sub angular, some sand very fine - fine, loose, wet
		2	6-8	1.0	2 2 3 3	5	3.4 10.6		Black SAND, very fine - fine, some fine gravel, sub angular, little coarse sand, trace brick fragments, medium dense, wet, petroleum like odor, black staining
		3	8-10	1.1	2 8 18 23	26	2.8 9.8		Dark gray, very fine SAND, some silt, wet, soft petroleum like odor COAL TAR fragments
10	-10	4	10-12	1.3	15 23 23 25	46	10.1 5.8		Dark gray, fine GRAVEL, sub angular, little silt, little fine sand, trace brick fragments, loose, wet, sheen over interval, petroleum like odor Dark gray, mottled light gray, fine SAND, little coarse sand, little fine gravel, sub angular, very dense, wet,petroleum like odor
		5	12-14	1.6	23 24 25 25	49	30.5 3.1		Black fine GRAVEL, sub angular, some coarse sand, little silt, loose, wet, sheen across interval, black staining, petroleum like odor
15	-15	6	14-16	0.3	7 12 12 13	24	13.4 13.4		Yellowish brown SAND, very fine - fine, trace coarse sand, very dense, moist, faint petroleum like odor Yellowish brown fine SAND, little coarse sand, dense - very dense, moist



Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25".

Client: Consolidated Edison

Well/Boring ID: **TW-1**

Borehole Depth: 28.0 ft. bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
		7	16-18	1.2	8 9 10 10	19	2.4 2.0		Yellowish orange coarse SAND, some sand very fine - fine, trace fine gravel sub rounded, dense, moist - wet Soil sample collected over 16-17 ft. bgs. interval	(15-17 ft bgs) 2" Diameter Schedule 40 PVC Riser (0.0-18.0 ft bgs)
		8	18-20	0.3	40 50/3	NA	5.6 2.0		Same as above	
20	-20	9	20-22	1.1	25 30 30 50/2	60	1.2 3.1		Brown, dark gray in part coarse SAND, trace fine gravel, sub angular- sub rounded, dense, wet	
		10	22-24	0.9	40 50/4	NA	4.1 1.3		Tan going to dark gray coarse SAND, little snd very fine - fine, dense, wet	#2 Sand Filter Pack (17.0-28.0 ft bgs) 0.01" slot, 2" Diameter Schedule 40 PVC Screen (18.0-28.0 ft bgs)
25	-25	11	24-26	0.6	33 50/3	NA	7.8 4.3		Brown coarse SAND, some sand very fine - fine, dense, wet	
		12	26-28	0.5	50/5	NA	0.8 0.5		Tannish brown coarse SAND, little fine sand, dense, wet	
									End of borehole at 28.0 ft. bgs.	
30	-30									
35	-35									

ARCADIS Design & Consultancy for natural and built assets

Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25".

Date Start/Finish: 11/15/18
Drilling Company: Parratt-Wolff
Driller's Name: Rick Nolvka and Jolan Price
Drilling Method: Vac Truck and HSA
Auger Size: 4.25 in.
Rig Type: CME 550
Sampling Method: Split spoon

Northing: 895647.25454
Easting: 648500.18370
Casing Elevation: 7.71111 ft. amsl.

Borehole Depth: 24.3 ft. bgs.
Surface Elevation: 7.97534 ft. amsl.

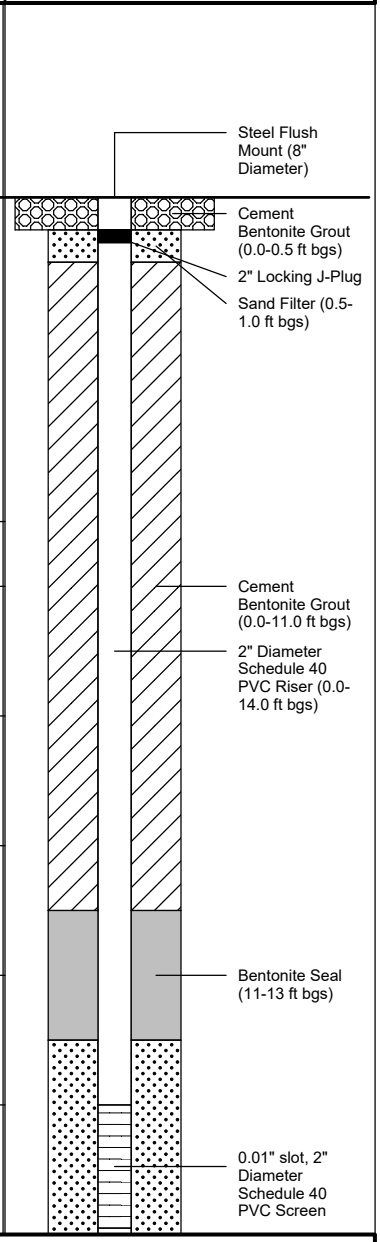
Descriptions By: Evan Green

Well/Boring ID: **TW-2**

Client: Consolidated Edison

Location: 189 N. Water St, Peekskill, NY 10566

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0	NA	NA	NA	NA	NA	NA		Used Vacuum Truck to Hand Clear to 5 ft. bgs.
5	-5	5-6	1	0.2	4 6	10	0.0		Dark gray fine GRAVEL, sub angular, some coarse sand, little fine sand, loose, wet
		6-8	2	0.6	4 5 5 7	10	57.0 203.6		Black SILT, little fine gravel, sub angular, soft, wet, sheen across sample interval, petroleum like odor
		8-10	3	0.5	8 9 9 11	18	60.1 47.2		Dark brown SAND, medium - coarse, little fine gravel, sub angular, little silt, loose, wet, light sheen across sample interval, petroleum like odor
10	-10	10-12	4	0.7	12 12 9 13	21	25.6 20.8		Yellowish brown SAND, very fine - fine, little coarse sand, little fine gravel, sub rounded - sub angular, medium dense - dense, moist - wet
		12-14	5	0.9	27 27 17 19	44	41.4 10.5		Yellowish brown SAND very fine - fine, some fine gravel sub rounded - sub angular, dense, moist - wet
15	-15	14-16	6	0.9	21 20 16 10	36	56.0 15.4		Orangish brown SAND, very fine - fine, little fine gravel, sub angular, trace coarse sand, medium dense, moist - wet



Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

ARCADIS Design & Consultancy for natural and built assets

Client: Consolidated Edison

Well/Boring ID: TW-2

Borehole Depth: 24.3 ft. bgs.

Site Location:
189 N. Water St, Peekskill, NY 10566

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
	16-18	7	1.2	21 28 30 42	58	9.7 3.0		Yellowish orange SAND, medium - coarse, little fine sand, very dense, moist	(14.0-24.0 ft bgs)
	18-20	8	1.0	19 18 32 35	50	9.7 17.1		Orangish brown coarse SAND, trace fine sand, very dense, moist - wet	#2 Sand Filter Pack (13.0-24.0 ft bgs)
20 -20	20-22	9	0.8	32 50/4	NA	63.2 65.0		Orangish brown SAND, medium - coarse, little fine sand, dense - very dense, moist	0.01" slot, 2" Diameter Schedule 40 PVC Screen (14.0-24.0 ft bgs)
	22-24	10	0.4	50/4	NA	57.7 34.2		Same as above Auger Refusal at 24.3 ft. bgs.	
	24 24.3	11	0.2	50/3	NA	3.7		No recovery, granitic gneiss chips in the shoe of the split spoon	
25 -25								Top of bedrock at 24.3 ft. bgs.	
30 -30									
35 -35									

ARCADIS Design & Consultancy for natural and built assets

Remarks: bgs = below ground surface. ft = feet. " = inch. ppm = parts per million. NA = Not Applicable/Available.. Horizontal coordinate system = NAD 83. Vertical coordinate system = NAVD 88. Vacmaster System 4000 used to soft dig to 5 ft bgs.Split spoon length = 2 ft. Split spoon inner diameter = 2". Split spoon outer diameter = 2.25"

Date Start/Finish: 11/21/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895679.90
Easting: 648077.10
Casing Elevation: NA

Borehole Depth: 6.0' bss
Surface Elevation: -5.9

Descriptions By: J. Oliver

Well/Boring ID: **PDI-SED-108**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	2.0	WOH/2'	0	0.8		Black to dark gray SILT, some to little fine Sand, very soft.	
									Gray SILT, trace fine to medium Sand lenses, trace Clay, nonplastic, soft, organic Odor.	
		2	2-4'	2.0	1 4 6 6	10	2.2		Gray to brownish gray CLAY and SILT, some to little fine Sand, low plasticity, soft to moderately stiff.	Borehole backfilled with cement/bentonite to grade.
									Brown fine SAND, trace Silt, moderately dense.	
5	-5	3	4-6'	1.4	4 7 8 11	15	0.5		Brown SILT, little to trace brownish gray Clay, low to nonplastic, soft to moderately stiff.	
									END OF BOREHOLE 6' bss	
10	-10									
15	-15									

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Remarks: AMSL = Above Mean Sea Level
bss = below sediment surface
NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 11/21/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895702.20
Easting: 648032.40
Casing Elevation: NA

Borehole Depth: 6.0' bss
Surface Elevation: -6.2

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-109**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0									
		1	0-2'	2.0	WOT/2'	0	10.1		Black SILT and fine SAND, trace Organics and Sheen, loose, saturated.	
									Brown to gray brown SILT and fine SAND, some Organics (wood, roots), soft, loose, saturated.	
		2	2-4'	2.0	2 2 2 2	4	0.8 0.3		Gray SILT and CLAY, trace fine Sand, low plasticity, soft, saturated.	Borehole backfilled with cement/bentonite to grade.
5	-5	3	4-6'	2.0	4 6 4 7	10	0.1			
									END OF BOREHOLE 6' bss	
10	-10									
15	-15									

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Remarks: AMSL = Above Mean Sea Level
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NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 11/21/13
Drilling Company: Parratt-Wolff
Driller's Name: G. Lansing
Drilling Method: Drive and Wash
Auger Size: NA
Rig Type: Barge-mounted Packer Ace
Sampling Method: 2" x 2' splitspoon

Northing: 895740.90
Easting: 648039.60
Casing Elevation: NA

Borehole Depth: 6.0' bss
Surface Elevation: -5.8

Descriptions By: W. Stephens

Well/Boring ID: **PDI-SED-110**

Client: Con Edison

Location: Former Pemart Ave MGP site
Peekskill, NY

DRAFT

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	Blow Counts	N - Value	PID Headspace (ppm)	Geologic Column	Stratigraphic Description	Well/Boring Construction
0	0	1	0-2'	1.0	WOT/2'	0	13.8		Gray SILT and fine SAND, some lenses of medium Sand, trace Organics (wood), Sheen, and coaltar-like odor, loose, saturated.	
		2	2-4'	1.4	2 2 3 6	5	9.7 1.3		Gray to brown SILT and CLAY, trace fine Sand and Organics, low to nonplastic, soft. Presence of sheen decreasing with depth.	Borehole backfilled with cement/bentonite to grade.
5	-5	3	4-6'	2.0	2 4 6 5	10	0.8		Black medium to coarse SAND, little to trace fine Sand, loose, saturated. Gray to brown SILT and CLAY, trace fine Sand, low plasticity, soft. Brown Sandy SILT, little to trace fine Sand, nonplastic, moist to saturated. END OF BOREHOLE 6' bss	
10	-10									
15	-15									

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NA = Not Applicable/Available
WOH = Weight Of Hammer (140 lbs)

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895699.97
Easting: 648104.61
Penetration depth: 14.5'
Water Depth: 5.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-111**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0				47.7		Dark gray to black SILT, some fine Sand, trace fine Gravel, iridescent sheens, MGP-like odor, NAPL blebs (<0.01' diameter), soft, wet.
						Brown SILT, trace fine Sand, trace Clay, trace Organics (wood), soft, moist.
				4.1		
-10						
5				0.5		Gray to green CLAY, little Silt, firm, nonplastic, moist.
	1	0-14.5'	14.5'			Light brown to orange SILT, some to little Clay(<.1' lenses), trace fine Sand, firm, moist.
-15						
10				0.2		
-20						End of boring at 14.5' bss.
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895684.41
Easting: 648129.95
Penetration depth: 14.0'
Water Depth: 5.2'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-112**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0						Dark Gray SILT, some to little fine Sand, trace Organics (roots, wood), iridescent sheens, MGP-like odor, NAPL blebs, wet.
				25.3		Gray to brown SILT, trace fine Sand, trace Organics(wood), moist
				0.5		
-10 / 5						Gray to green CLAY, trace Silt, trace fine Sand, firm, nonplastic, moist.
				0.3		Light brown to orange SILT, some to little Clay (lenses), trace very fine Sand, firm, nonplastic, moist.
	1	0-14.0'	14.0'			No obvious impacts.
-15 / 10						
				0.2		End of boring at 14.0' bss.
-20 / 15						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895675.06
Easting: 648149.03
Penetration depth: 13.0'
Water Depth: 5.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-113**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	-5						
					32.1		Black fine SAND, some Silt, trace fine Gravel, black staining, heavey sheens, strong MGP-like odor, heavy NAPL coating, wet.
							Brown SILT, trace fine Sand, trace Clay, soft, nonplastic, moist.
					3.1		
5	-10				0.0		Gray to greenish gray CLAY, trace Silt, firm, nonplastic, moist.
		1	0-13.0'	12.0	0.3		Light brown silty SAND, little Silt, little Clay, loose, wet.
							Light brown SILT, some to little Clay, trace fine Sand, stiff, moist.
10	-15				0.2		Thin lenses of brown fine Sand (<0.1') at 9.4', 11.3', and 12.0' bss.
							End of boring at 13.0'bss.
15	-20						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895655.62
Easting: 648186.06
Penetration depth: 13.0'
Water Depth: 4.3'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-114**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5				143.4		Black fine to medium SAND, little Silt, trace Organics, trace fine Gravel, heavy black NAPL coating to saturated, strong MGP-like odor, abundant iridescent sheens, wet.
				5.3		Brown SILT, trace fine Sand, trace Organics (wood), soft, moist.
5 -10	1	0-13.0'	10.5'	2.2		Gray fine to medium SAND, little fine to medium subangular Gravel, loose, wet.
10 -15				1.3		End of boring at 13.0' bss.
15 -20						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895636.25
Easting: 648205.78
Penetration depth: 11.0'
Water Depth: 4.1'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-115**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5				68.1		Dark gray to black fine to coarse SAND, little Silt, trace Organics (wood), trace fine to coarse Gravel, heavy NAPL coating, MGP-like odor, iridescent sheens, wet.
				6.8		Brown to gray-brown SILT, trace fine Sand, trace Clay, trace Organics (wood), faint MGP-like odor, soft, moist
5						Gray-brown SILT, trace fine Sand, trace Clay, trace Organics, organic-like odor, soft, moist.
-10	1	0-11.0'	8.8'			No obvious impacts.
				0.4		
10				0.2		Brown PEAT, organic odor, soft.
						End of boring at 11.0' bss.
-15						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 -12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895614.90
Easting: 648215.02
Penetration depth: 11.5'
Water Depth: 7.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-116**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5				132.1		Black fine SAND, some Silt, trace Organics, strong MGP-like odor, light brown NAPL coating with black NAPL blebs, loose, wet.
				32.5		Gray-brown SILT, trace fine Sand, soft, faint MGP-like odor, moist.
5 -10	1	0-11.5'	7.3'	15.3		
10 -15						End of boring at 11.5' bss.
15 -20						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895617.71
Easting: 648235.98
Penetration depth: 12.0'
Water Depth: 7.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-117**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0 / -5				113.2		Dark brown fine to medium SAND, trace Organics, trace fine Gravel, light brown NAPL coating, MGP-like odor, wet.
				23.2		Brown SILT, little fine Sand, trace fine Gravel, trace NAPL blebs (<0.01' diameter), soft, wet.
5 / -10	1	0-12.0'	7.7'	5.2		Brown SILT, trace fine Sand, trace Organics (wood), trace Clay, soft, nonplastic, moist.
				0.3		
10 / -15						End of boring at 12.0' bss.
15 / -20						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895591.39
Easting: 648239.24
Penetration depth: 11.0'
Water Depth: 5.2'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-118**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
				6.1		Dark gray to black fine to medium SAND, some to little fine to medium Gravel, MGP-like odor, trace sheens, black staining, loose, wet.
-5				3.2		Gray fine to medium SAND, some Silt, trace fine to medium Gravel, trace Organics (wood), MGP-like odor, trace iridescent sheens, wet.
5	1	0-11.0'	8.0'			
				0.2		Brown SILT, trace fine Sand, trace Organics (wood), trace Clay, soft,, moist. No obvious impacts.
-10						
10						End of boring at 11.0' bss.
-15						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895574.84
Easting: 648252.56
Penetration depth: 11.0'
Water Depth: 5.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-119**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0						
					3.6		Gray fine subangular GRAVEL, little fine to coarse Sand, trace Organics (wood), trace Fill (red brick, glass), loose, wet.
					0.1		Gray fine to medium SAND, some Silt, trace fine to medium Gravel, MGP-like odor, iridescent sheens, trace NAPL blebs (<0.01' diameter), loose, wet.
5	-5	1	0-11.0'	7.6'			
					0.6		Brown SILT, trace fine Sand, trace Organics (wood), trace Clay, soft, moist. No obvious impacts.
					0.3		
10	-10						End of boring at 11.0' bss.
15	-15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: NA
Easting: NA
Penetration depth: 11.0'
Water Depth: 5.3'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-120**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0						
		1	0-11.0'	7.0'	3.6		Dark gray fine to medium SAND, little fine subangular Gravel, trace Fill (red brick), petroleum-like odor, loose, wet.
					0.1		Brown SILT, trace fine Sand, trace Organics (wood), soft, wet. No obvious impacts.
5	-5				0.6		Dark gray to black fine to coarse SAND, some fine to medium Gravel, little Organics (wood), trace iridescent sheens, faint MGP-like odor, wet.
					0.3		Brown SILT, trace fine Sand, trace Organics (wood), trace Clay, soft, nonplastic, moist. End of boring at 11.0' bss.
10	-10						
15	-15						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 -12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895514.60
Easting: 648248.13
Penetration depth: 5.5'
Water Depth: 5.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-121**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5		0-5.5'	5.2'	1.2		Gray fine to coarse SAND, some fine subangular Gravel, trace Organics (wood), trace Fill (red brick, glass), faint MGP-like odor, loose, wet.
				3.8		Gray to brown fine to medium SAND, little Silt, trace Organics (wood), faint MGP-like odor, wet. Thin lens of black stained Sand at 4.5' bss.
5				0.3		Brown SILT, trace fine Sand, trace Organics, trace Clay, soft, nonplastic, moist. End of boring at 5.5' bss.
-10	1					
10						
-15						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.

Date Start/Finish: 12/9/14 -12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895436.61
Easting: 648279.54
Penetration depth: 14.0'
Water Depth: 5.5'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-125**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
						Brown fine subround to subangular GRAVEL, trace fine to medium Sand, loose, wet.
						Black fine SAND, some Silt, trace fine to medium Gravel, MGP-like odor, black staining, wet.
-5				23.7		
5						
-10	1	0-14.0'	7.0'			
						Brown to gray SILT, trace fine Sand, trace Clay, soft, wet.
						No obvious impacts.
10				34.1		Black fine to medium GRAVEL, some fine to medium Sand, little Organics (wood), light NAPL coating, MGP-like odor, wet.
-15						Brown SILT, trace fine Sand, trace Clay, soft, Organic-like odor, moist.
						No obvious impacts.
				12.3		End of boring at 14.0' bss.
15						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895420.79
Easting: 648252.97
Penetration depth: 10.0'
Water Depth: 8.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-126**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0						Black fine to medium SAND, little silt, trace Organics, strong MGP-like odor, NAPL coating, wet.
-10				234		
5	1	0-10.0'	7.5'			Gray to brown SILT, trace fine Sand, MGP-like odor, trace brown NAPL blebs, vertical lenses of NAPL, soft, moist.
				33.4		
-15						
10						Gray fine to coarse GRAVEL, loose, wet.
						End of boring at 10.0' bss.
-20						
15						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 20'x3" Diameter Aluminum

Northing: 895390.69
Easting: 648255.25
Penetration depth: 11.5' bss
Water Depth: 8.2'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-127**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0						Black fine to coarse SAND, some Silt, trace Organics (wood), black staining, light NAPL coating, MGP-like odor, wet.
				3.2		
-10 / 5				13.3		Gray to brown SILT, trace fine Sand, trace Organics (wood), MGP-like odor, trace NAPL blebs (<.01" diameter),soft, moist.
				34.7		Light NAPL coating with MGP-like odors at 6.0-6.3'
	1	1-11.5'	7.2'			Gray medium to coarse SAND, trace fine to medium subangular Gravel,loose, wet,
-15 / 10						End of boring at 11.5' bss.
-20 / 15						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 20'x3" Diameter Aluminum

Northing: 895341.27
Easting: 648262.16
Penetration depth: 13.0' bss
Water Depth: 8.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-128**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
				0.0		Dark gray to black SILT, some fine to medium Sand, little fine to medium Gravel, trace Organics (wood), soft, trace iridescent sheens, MGP-like odor, black staining, wet.
-10						
5				0.0		Gray to brown SILT, trace fine Sand, trace fine Gravel, trace Clay, no odor, soft, moist.
	1	1-13'	8.0'			No visual impacts.
-15						
10				0.0		Gray fine to coarse SAND, little fine to medium Gravel, trace Silt, wet.
						No visual impacts.
						End of boring at 13.0' bss.
-20						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/11/14 **Drilling Company:** ARCADIS of New York, Inc. **Driller's Name:** Pat Dougher **Drilling Method:** Vibracore **Sampling Method:** 15'x3" Diameter Aluminum	**Northing:** 895309.14 **Easting:** 648260.28 **Penetration depth:** 10.0' **Water Depth:** 6.0' **Descriptions By:** W. Stephens	**Boring ID:** **PDI-SED-129** **Client:** Consolidated Edison of New York **Location:** Former Pemart Ave Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
				2.3		Dark gray to black SILT, some fine to medium Sand, trace fine to medium Gravel, trace Organics (wood), petroleum-like odor, soft, wet.
-10				1.3		Dark gray SILT, little fine to medium Sand, trace fine Gravel, faint petoleum-like odor, soft, moist.
				0.0		Brown to gray-brown SILT, trace fine Sand, trace Clay, trace Organics (wood), soft, moist.
5	1	0-10.0'	4.1'			No obvious impacts.
-15						End of boring at 10.0' bss.
10						
-20						
15						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/11/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895363.39
Easting: 648242.95
Penetration depth: 11.0'
Water Depth: 6.7'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-130**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
				0.2		Dark gray to black SILT, little fine Sand, little Organics (wood), soft, wet.
						Dark gray SILT, little fine Sand, soft, wet.
-10				0.2		
						Gray medium to coarse SAND, some fine subangular Gravel, trace Silt, loose, petroleum-like odor, wet.
				2.7		
5						Dark gray SILT, trace fine Sand, trace Organics (wood), petroleum-like odor, dark staining, soft, wet.
	1	0-11.0'	9.5'	3.0		Brown SILT, trace fine Sand, trace Clay, soft, moist.
-15				0.0		
10						End of boring at 11.0' bss.
-20						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/11/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895762.19
Easting: 648017.95
Penetration depth: 9.0'
Water Depth: 4.7'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-131**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0				2.7		Dark gray to black SILT, some fine Gravel, little fine to medium Sand, MGP-like odor, iridescent sheens, trace brown NAPL blebs, wet.
						Brown SILT, trace fine Sand, trace Clay, trace Organics (wood), soft, moist.
-10				0.0		
				0.0		Gray coarse subround GRAVEL, little Silt, trace Clay, wet.
5	1	0-9.0'	7.6'			Gray SILT, some to little Clay, little fine Sand,firm, moist to wet.
				0.0		Lenses of fine Sand.
				0.0		Light Brown SILT, little fine Sand, trace Clay, firm, moist.
						Gray CLAY, some Silt, trace fine Sand, firm, moist.
-15				0.0		End of boring at 9.0' bss.
10						
-20						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/11/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895776.16
Easting: 647997.39
Penetration depth: 9.0'
Water Depth: 4.6'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-132**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0						Gray to brown SILT, little fine Sand, loose, wet.
				0.0		Brown SILT, trace Organics (wood), trace fine Sand, trace Clay, soft, moist.
-10				0.0		
5	1	0-9.0'	8.0'			Gray SILT and coarse subangular GRAVEL, little Clay, trace fine Sand, firm, moist.
				0.0		Gray to green CLAY, some Silt, trace fine Sand, firm, nonplastic, moist.
						Light brown to gray SILT, little Clay, trace fine Sand, firm, nonplastic, moist.
				0.0		Gray CLAY, little Silt, firm, nonplastic, moist.
-15						
10						End of boring at 9.0' bss.
-20						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895699.97
Easting: 648104.61
Penetration depth: 14.5'
Water Depth: 5.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-111**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0				47.7		Dark gray to black SILT, some fine Sand, trace fine Gravel, iridescent sheens, MGP-like odor, NAPL blebs (<0.01' diameter), soft, wet.
						Brown SILT, trace fine Sand, trace Clay, trace Organics (wood), soft, moist.
				4.1		
-10						
5				0.5		Gray to green CLAY, little Silt, firm, nonplastic, moist.
	1	0-14.5'	14.5'			Light brown to orange SILT, some to little Clay(<.1' lenses), trace fine Sand, firm, moist.
-15						
10				0.2		
-20						End of boring at 14.5' bss.
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895684.41
Easting: 648129.95
Penetration depth: 14.0'
Water Depth: 5.2'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-112**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0						Dark Gray SILT, some to little fine Sand, trace Organics (roots, wood), iridescent sheens, MGP-like odor, NAPL blebs, wet.
				25.3		Gray to brown SILT, trace fine Sand, trace Organics(wood), moist
				0.5		
-10 / 5						Gray to green CLAY, trace Silt, trace fine Sand, firm, nonplastic, moist.
				0.3		Light brown to orange SILT, some to little Clay (lenses), trace very fine Sand, firm, nonplastic, moist.
	1	0-14.0'	14.0'			No obvious impacts.
-15 / 10				0.2		End of boring at 14.0' bss.
-20 / 15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895675.06
Easting: 648149.03
Penetration depth: 13.0'
Water Depth: 5.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-113**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	-5						
					32.1		Black fine SAND, some Silt, trace fine Gravel, black staining, heavey sheens, strong MGP-like odor, heavy NAPL coating, wet.
							Brown SILT, trace fine Sand, trace Clay, soft, nonplastic, moist.
					3.1		
5	-10				0.0		Gray to greenish gray CLAY, trace Silt, firm, nonplastic, moist.
		1	0-13.0'	12.0	0.3		Light brown silty SAND, little Silt, little Clay, loose, wet.
							Light brown SILT, some to little Clay, trace fine Sand, stiff, moist.
10	-15				0.2		Thin lenses of brown fine Sand (<0.1') at 9.4', 11.3', and 12.0' bss.
							End of boring at 13.0'bss.
15	-20						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895655.62
Easting: 648186.06
Penetration depth: 13.0'
Water Depth: 4.3'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-114**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5				143.4		Black fine to medium SAND, little Silt, trace Organics, trace fine Gravel, heavy black NAPL coating to saturated, strong MGP-like odor, abundant iridescent sheens, wet.
				5.3		Brown SILT, trace fine Sand, trace Organics (wood), soft, moist.
-10	1	0-13.0'	10.5'	2.2		Gray fine to medium SAND, little fine to medium subangular Gravel, loose, wet.
-15				1.3		End of boring at 13.0' bss.
-20						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895636.25
Easting: 648205.78
Penetration depth: 11.0'
Water Depth: 4.1'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-115**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5				68.1		Dark gray to black fine to coarse SAND, little Silt, trace Organics (wood), trace fine to coarse Gravel, heavy NAPL coating, MGP-like odor, iridescent sheens, wet.
				6.8		Brown to gray-brown SILT, trace fine Sand, trace Clay, trace Organics (wood), faint MGP-like odor, soft, moist
5						Gray-brown SILT, trace fine Sand, trace Clay, trace Organics, organic-like odor, soft, moist.
-10	1	0-11.0'	8.8'			No obvious impacts.
				0.4		
10				0.2		Brown PEAT, organic odor, soft.
						End of boring at 11.0' bss.
-15						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 -12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895614.90
Easting: 648215.02
Penetration depth: 11.5'
Water Depth: 7.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-116**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5				132.1		Black fine SAND, some Silt, trace Organics, strong MGP-like odor, light brown NAPL coating with black NAPL blebs, loose, wet.
				32.5		Gray-brown SILT, trace fine Sand, soft, faint MGP-like odor, moist.
5 -10	1	0-11.5'	7.3'	15.3		
10 -15						End of boring at 11.5' bss.
15 -20						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895617.71
Easting: 648235.98
Penetration depth: 12.0'
Water Depth: 7.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-117**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0 / -5				113.2		Dark brown fine to medium SAND, trace Organics, trace fine Gravel, light brown NAPL coating, MGP-like odor, wet.
				23.2		Brown SILT, little fine Sand, trace fine Gravel, trace NAPL blebs (<0.01' diameter), soft, wet.
5 / -10	1	0-12.0'	7.7'	5.2		Brown SILT, trace fine Sand, trace Organics (wood), trace Clay, soft, nonplastic, moist.
10 / -15				0.3		End of boring at 12.0' bss.
15 / -20						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895591.39
Easting: 648239.24
Penetration depth: 11.0'
Water Depth: 5.2'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-118**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
				6.1		Dark gray to black fine to medium SAND, some to little fine to medium Gravel, MGP-like odor, trace sheens, black staining, loose, wet.
-5				3.2		Gray fine to medium SAND, some Silt, trace fine to medium Gravel, trace Organics (wood), MGP-like odor, trace iridescent sheens, wet.
5	1	0-11.0'	8.0'			
				0.2		Brown SILT, trace fine Sand, trace Organics (wood), trace Clay, soft,, moist. No obvious impacts.
-10						
10						End of boring at 11.0' bss.
-15						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895574.84
Easting: 648252.56
Penetration depth: 11.0'
Water Depth: 5.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-119**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0						
					3.6		Gray fine subangular GRAVEL, little fine to coarse Sand, trace Organics (wood), trace Fill (red brick, glass), loose, wet.
					0.1		Gray fine to medium SAND, some Silt, trace fine to medium Gravel, MGP-like odor, iridescent sheens, trace NAPL blebs (<0.01' diameter), loose, wet.
5	-5	1	0-11.0'	7.6'			
					0.6		Brown SILT, trace fine Sand, trace Organics (wood), trace Clay, soft, moist. No obvious impacts.
					0.3		
10	-10						End of boring at 11.0' bss.
15	-15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: NA
Easting: NA
Penetration depth: 11.0'
Water Depth: 5.3'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-120**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH	ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0	0						
		1	0-11.0'	7.0'	3.6		Dark gray fine to medium SAND, little fine subangular Gravel, trace Fill (red brick), petroleum-like odor, loose, wet.
					0.1		Brown SILT, trace fine Sand, trace Organics (wood), soft, wet. No obvious impacts.
5	-5				0.6		Dark gray to black fine to coarse SAND, some fine to medium Gravel, little Organics (wood), trace iridescent sheens, faint MGP-like odor, wet.
					0.3		Brown SILT, trace fine Sand, trace Organics (wood), trace Clay, soft, nonplastic, moist. End of boring at 11.0' bss.
10	-10						
15	-15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 -12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895514.60
Easting: 648248.13
Penetration depth: 5.5'
Water Depth: 5.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-121**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5		0-5.5'	5.2'	1.2		Gray fine to coarse SAND, some fine subangular Gravel, trace Organics (wood), trace Fill (red brick, glass), faint MGP-like odor, loose, wet.
				3.8		Gray to brown fine to medium SAND, little Silt, trace Organics (wood), faint MGP-like odor, wet. Thin lens of black stained Sand at 4.5' bss.
5				0.3		Brown SILT, trace fine Sand, trace Organics, trace Clay, soft, nonplastic, moist. End of boring at 5.5' bss.
	1					
-10						
10						
-15						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.

Date Start/Finish: 12/9/14 -12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895436.61
Easting: 648279.54
Penetration depth: 14.0'
Water Depth: 5.5'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-125**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
-5	1	0-14.0'	7.0'	23.7		Brown fine subround to subangular GRAVEL, trace fine to medium Sand, loose, wet.
						Black fine SAND, some Silt, trace fine to medium Gravel, MGP-like odor, black staining, wet.
5						
-10						
10				34.1		Brown to gray SILT, trace fine Sand, trace Clay, soft, wet.
						No obvious impacts.
						Black fine to medium GRAVEL, some fine to medium Sand, little Organics (wood), light NAPL coating, MGP-like odor, wet.
-15						Brown SILT, trace fine Sand, trace Clay, soft, Organic-like odor, moist.
				12.3		No obvious impacts.
						End of boring at 14.0' bss.
15						

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Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895420.79
Easting: 648252.97
Penetration depth: 10.0'
Water Depth: 8.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-126**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0						Black fine to medium SAND, little silt, trace Organics, strong MGP-like odor, NAPL coating, wet.
-10				234		
5	1	0-10.0'	7.5'			Gray to brown SILT, trace fine Sand, MGP-like odor, trace brown NAPL blebs, vertical lenses of NAPL, soft, moist.
				33.4		
-15						
10						Gray fine to coarse GRAVEL, loose, wet.
						End of boring at 10.0' bss.
-20						
15						

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Remarks: AMSL = Above Mean Sea Level; bgs = below ground surface; NA = Not applicable/Available: bss=below sediment surface.
Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 20'x3" Diameter Aluminum

Northing: 895390.69
Easting: 648255.25
Penetration depth: 11.5' bss
Water Depth: 8.2'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-127**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0						Black fine to coarse SAND, some Silt, trace Organics (wood), black staining, light NAPL coating, MGP-like odor, wet.
				3.2		
-10 / 5				13.3		Gray to brown SILT, trace fine Sand, trace Organics (wood), MGP-like odor, trace NAPL blebs (<.01" diameter),soft, moist.
				34.7		Light NAPL coating with MGP-like odors at 6.0-6.3'
	1	1-11.5'	7.2'			
-15 / 10						Gray medium to coarse SAND, trace fine to medium subangular Gravel,loose, wet,
						End of boring at 11.5' bss.
-20 / 15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/9/14 - 12/10/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 20'x3" Diameter Aluminum

Northing: 895341.27
Easting: 648262.16
Penetration depth: 13.0' bss
Water Depth: 8.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-128**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
				0.0		Dark gray to black SILT, some fine to medium Sand, little fine to medium Gravel, trace Organics (wood), soft, trace iridescent sheens, MGP-like odor, black staining, wet.
-10						
5						Gray to brown SILT, trace fine Sand, trace fine Gravel, trace Clay, no odor, soft, moist.
				0.0		No visual impacts.
	1	1-13'	8.0'			
-15						
10						Gray fine to coarse SAND, little fine to medium Gravel, trace Silt, wet.
				0.0		No visual impacts.
						End of boring at 13.0' bss.
-20						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/11/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895309.14
Easting: 648260.28
Penetration depth: 10.0'
Water Depth: 6.0'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-129**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
				2.3		Dark gray to black SILT, some fine to medium Sand, trace fine to medium Gravel, trace Organics (wood), petroleum-like odor, soft, wet.
-10				1.3		Dark gray SILT, little fine to medium Sand, trace fine Gravel, faint petoleum-like odor, soft, moist.
				0.0		Brown to gray-brown SILT, trace fine Sand, trace Clay, trace Organics (wood), soft, moist.
5	1	0-10.0'	4.1'			No obvious impacts.
-15						End of boring at 10.0' bss.
10						
-20						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/11/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895363.39
Easting: 648242.95
Penetration depth: 11.0'
Water Depth: 6.7'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-130**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
0						
				0.2		Dark gray to black SILT, little fine Sand, little Organics (wood), soft, wet.
-10				0.2		Dark gray SILT, little fine Sand, soft, wet.
				2.7		Gray medium to coarse SAND, some fine subangular Gravel, trace Silt, loose, petroleum-like odor, wet.
5	1	0-11.0'	9.5'	3.0		Dark gray SILT, trace fine Sand, trace Organics (wood), petroleum-like odor, dark staining, soft, wet.
-15				0.0		Brown SILT, trace fine Sand, trace Clay, soft, moist.
10						End of boring at 11.0' bss.
-20						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/11/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895762.19
Easting: 648017.95
Penetration depth: 9.0'
Water Depth: 4.7'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-131**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0				2.7		Dark gray to black SILT, some fine Gravel, little fine to medium Sand, MGP-like odor, iridescent sheens, trace brown NAPL blebs, wet.
						Brown SILT, trace fine Sand, trace Clay, trace Organics (wood), soft, moist.
-10				0.0		
				0.0		Gray coarse subround GRAVEL, little Silt, trace Clay, wet.
5	1	0-9.0'	7.6'	0.0		Gray SILT, some to little Clay, little fine Sand,firm, moist to wet.
						Lenses of fine Sand.
				0.0		Light Brown SILT, little fine Sand, trace Clay, firm, moist.
						Gray CLAY, some Silt, trace fine Sand, firm, moist.
-15				0.0		End of boring at 9.0' bss.
10						
-20						
15						

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Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Date Start/Finish: 12/11/14
Drilling Company: ARCADIS of New York, Inc.
Driller's Name: Pat Dougher
Drilling Method: Vibracore
Sampling Method: 15'x3" Diameter Aluminum

Northing: 895776.16
Easting: 647997.39
Penetration depth: 9.0'
Water Depth: 4.6'
Descriptions By: W. Stephens

Boring ID: **PDI-SED-132**
Client: Consolidated Edison of New York
Location: Former Pemart Ave
Peekskill,NY

DEPTH / ELEVATION	Sample Run Number	Sample/Int/Type	Recovery (feet)	PID Headspace (ppm)	Geologic Column	Stratigraphic Description
-5						
0						Gray to brown SILT, little fine Sand, loose, wet.
				0.0		Brown SILT, trace Organics (wood), trace fine Sand, trace Clay, soft, moist.
-10				0.0		
5	1	0-9.0'	8.0'			Gray SILT and coarse subangular GRAVEL, little Clay, trace fine Sand, firm, moist.
				0.0		Gray to green CLAY, some Silt, trace fine Sand, firm, nonplastic, moist.
						Light brown to gray SILT, little Clay, trace fine Sand, firm, nonplastic, moist.
				0.0		Gray CLAY, little Silt, firm, nonplastic, moist.
-15						
10						End of boring at 9.0' bss.
-20						
15						

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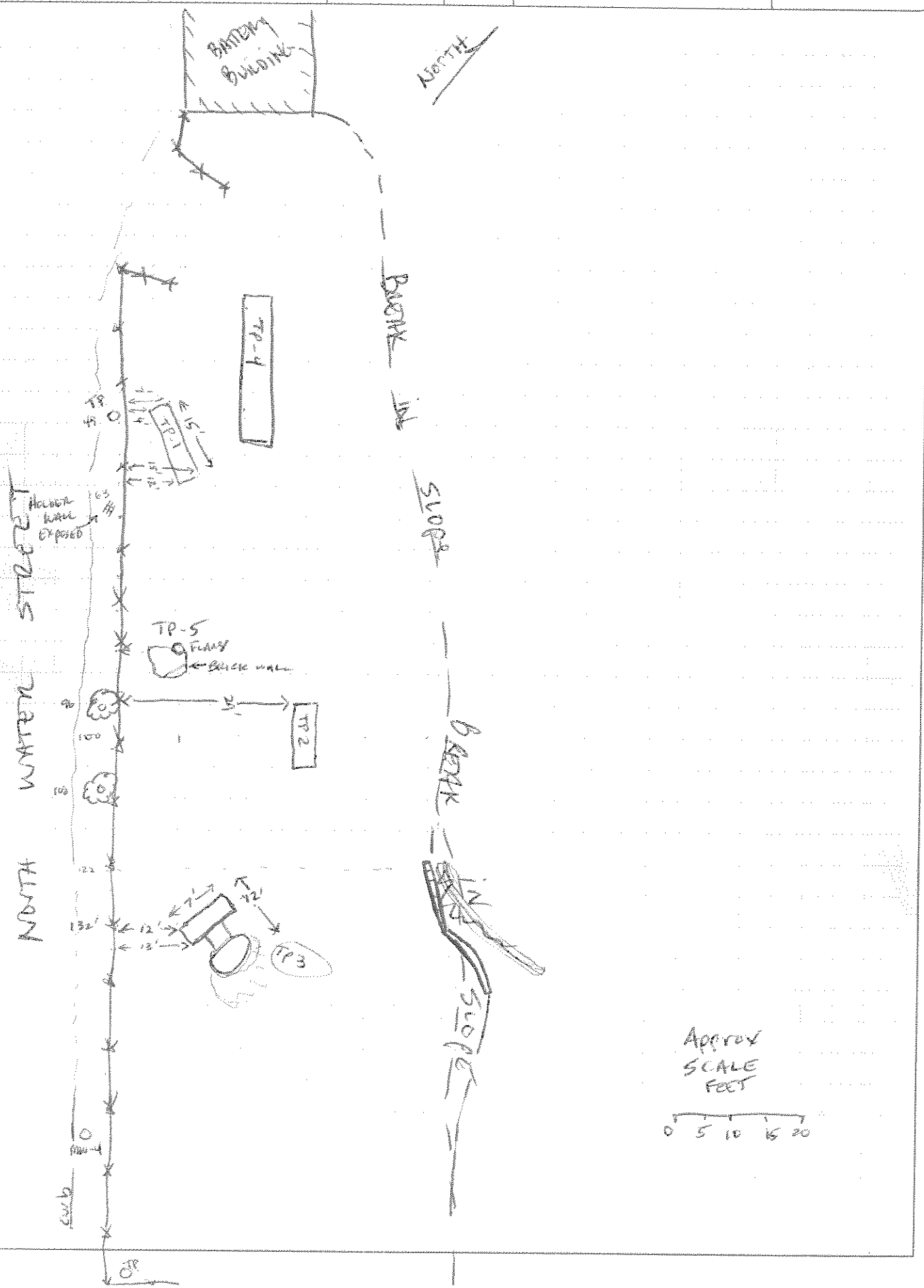
Remarks: AMSL = Above Mean Sea Level; bgs = below ground surface; NA = Not applicable/Available: bss=below sediment surface.
Coordinates are referenced to New York East state plane. NAD83/NAVD88. US survey foot.
Borings allowed to collapse naturally.

Title	Date	Dwg.	Project	Proposal
Test Pit Locations				



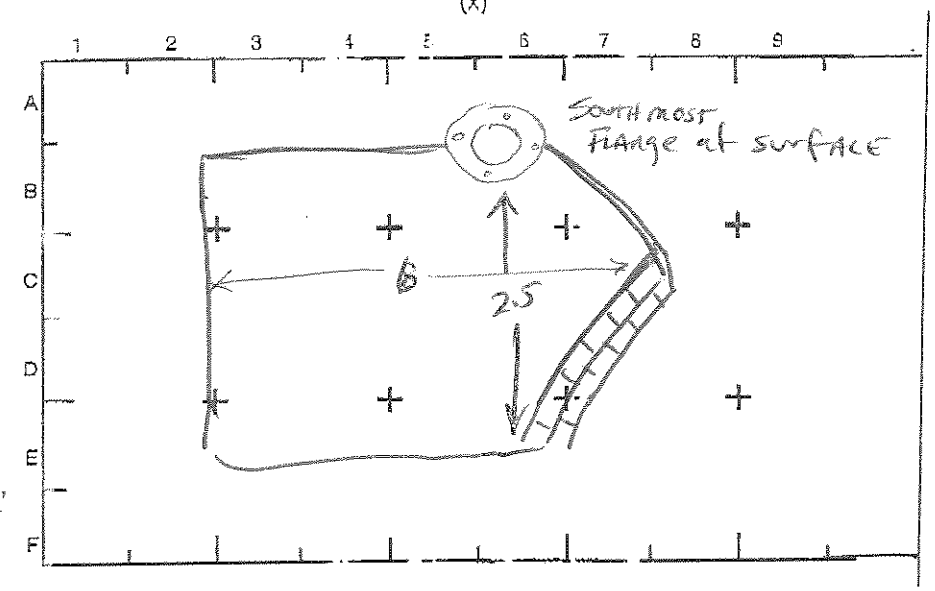
FORM 1052

Title	Date	Dwg.	Project	Disposal

Test Pit Profile Log

Project: Con Edison Pemart Ave
Project No.: 01869-116
Project Location: Peekskill, NY.
Test Pit No.: TP-5
Date: 3/22/06
Inspector: John Imhoff

Field Sketch: Birds EYE VIEW



W
(circle one)
N
E
S
(circle one)

Scale: ____'

Measurements:
(x) = ____
(y) = ____
Variable (V) = ____

Sample Summary:

Sample	Sample I.D.	Time	Depth (ft)	Horizontal Loc.	Matrix	Misc. Information	
A							
B							
C							
D							
E							
F							
G							

ENSR 1052

M96005

TEST PIT LOG

Page of

Project: Conlid Pemart Ave — Date: 3/22/06 — Test Pit: TP-5

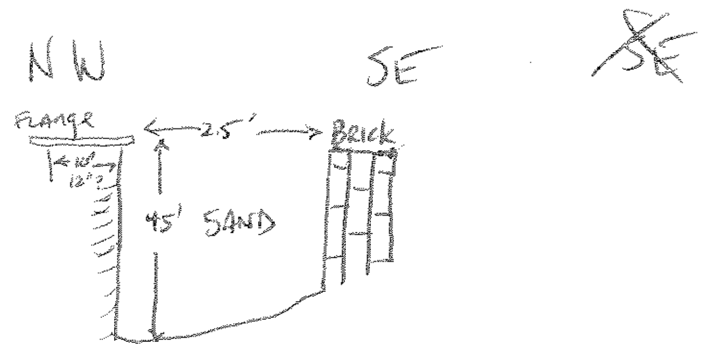
Project: 01869-116 — Loc tion: former Holder Area — G

Total I: 4.5' — Con ector: Environmental Closures Inc (ADT)

Equipm sed — Logged By: John Imhoff

Remarks

Elev Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
				0-0.5 Dark grey SAND & GRAVEL (working surface) 0.5-4.5' Brown well sorted poorly graded m. SAND. No odors.



Test Pit Plan

North

Groundwater		
Date	Time (Hrs. after Completion)	Depth (Feet)

EN R

TEST PIT LOG

Page of

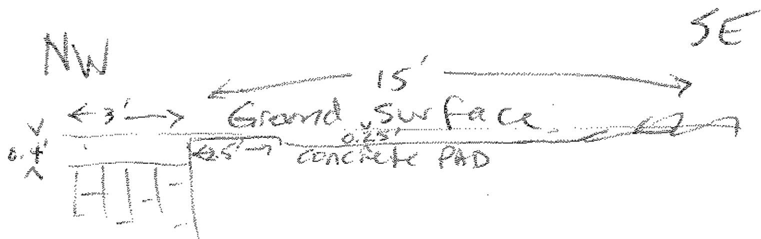
Project: ConEd Pennant Ave — Date: 3/22/06 — Test Pit: TP-1

Project: 01869-116 — Location: Former Holder location — G

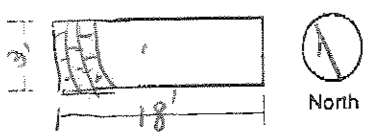
Total D: < 1 ft. bgs. — Contractor: ADT

Equipment Used: John Deer Rubber Tire Backhoe — Logged By: John Imhoff

Remarks: Very shallow surface excavation. No soil excavated. No Samples submitted for laboratory analysis

Elev. Feet	Depth Feet	Sample: Type & No.	Sample: Depth Range	Soil & Rock Description & Comments
				

Test Pit Plan



Groundwater

Date	Time (Hrs. after Completion)	Depth (Feet)

EN R

TEST PIT LOG

Project: Con Ed Remart Ave — Date: 3/22/06 — Test Pit: TP-2

Project: 01869-116 — Location: Former Holder location Area G

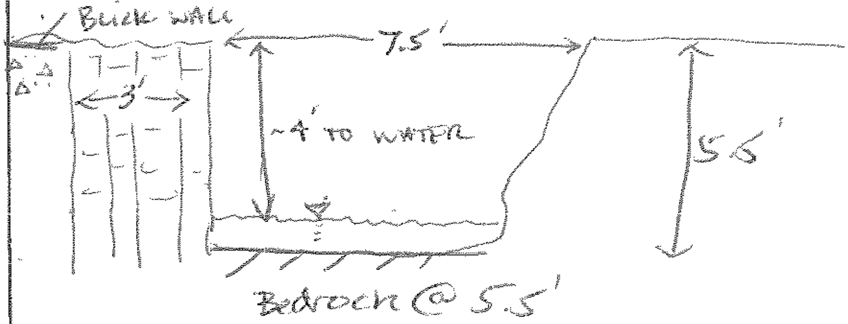
Total D: 5.5" BGS — Contractor: ADT

Equipment Used: John Deere RTB — Logged By: John Imhoff

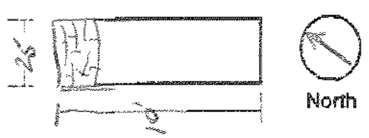
Remarks: Sample TP2(4-5) collected @ 1045 for VOCs SVOCs CN & TAL metals

Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
	1			0-5.5' ; Brown to Rust brown
	2	TP-2 (4-5')	4-5	SAND; some Gravel. (Fill) includes Brick fragments, Coal fragments
	3			
	4			
	5			

N — Cross Section — S



Test Pit Plan



Groundwater

Date	Time (Hrs. after Completion)	Depth (Feet)

Title: Test Pit TP-2	Date: 3/22/06	Dwg.	Project: ConEdison Pemart	Disposal

Test Pit Profile Log

Project: ConEdison Pemart Ave

Project Name: _____

Project Location: _____

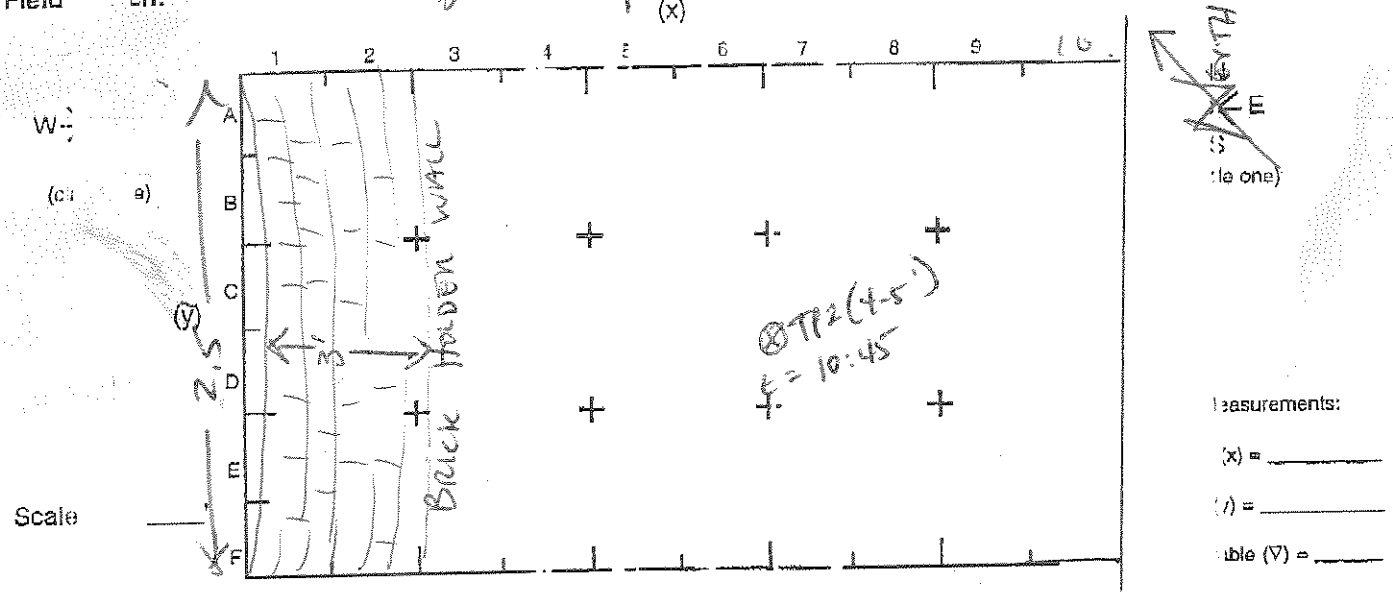
Test Pit No. TP #2

Date 3/22/06

Inspector JOHN IMHOFF

Field Sketch:

Birds eye view



Scale _____

Measurements:

(X) = _____

(Y) = _____

Variable (V) = _____

Sample Summary:

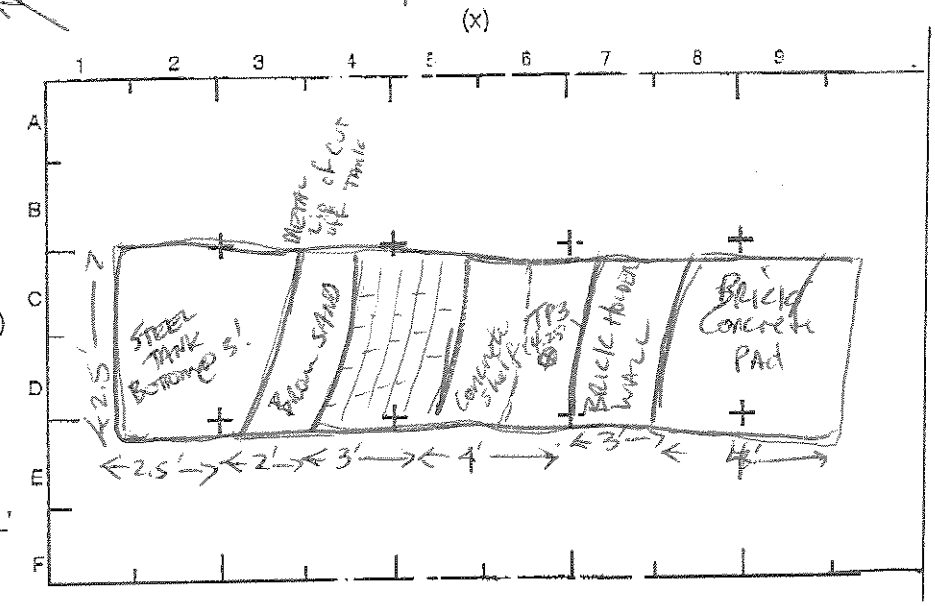
Sample	Sample I.D.	Time	Depth (ft)	Hor. Loc.	Matrix	Misc. Information	PID
A	TP-2	1045	4-5'		SAND	WATER AT ~4.0' BGS	4.9ppm
B						@11:45 WATER @ 3.8' BGS.	
C						no sheen, no odor evidence of impact	
D							
E							
F							
G							

Title	Date	Dwg.	Project	Disposal

Test Pit Profile Log

Project: Con Edison Peekskill
Project No: 01869-116
Project Location: Peekskill NY
Test Pit No.: TP-4
Date: 3/22/06
Inspector: John Imhoff

Field Sketch: NORTH — Bird's Eye View.



W-E (circle one)
N-S (circle one)

Scale: ____'

Measurements:
(x) = ____
(y) = ____
Variable (V) = ____

Sample Summary:

Sample	Sample I.D.	Time	Depth (ft)	Horiz. Loc.	Matrix	Misc. Information	
A							
B							
C							
D							
E							
F							
G							

ENSR 1052

TEST PIT LOG

Page ___ of ___

Project: Con Edison Pomort

Date: 3/22/06   Test Pit: TP-4

Project: 01869-116

Location: Former Holder Area

Total D: ___

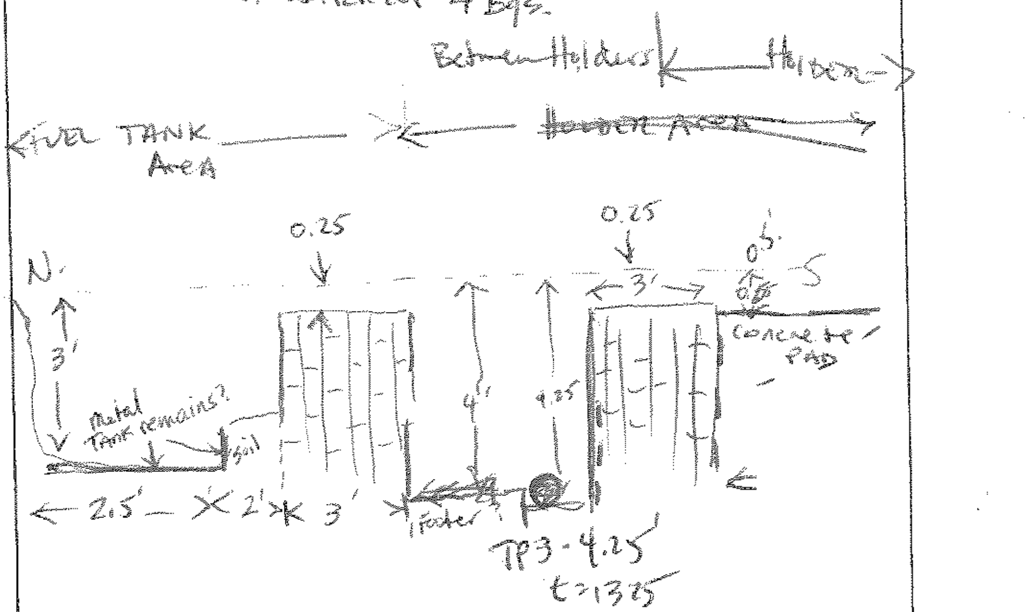
Contractor: ADT

Equipment Used: ___

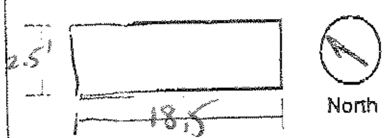
Logged By: John Imhoff

Remarks: Sample TP-4(4.25) collected at t=1325 for VOCs, SVOCs, CN⁻ & TAL metals

Elev. Feet	Depth Feet	Sample Type & No.	Sample Depth Range	Soil & Rock Description & Comments
				Fuel oil TANK Area:
				0-0.75' Dark grey Gravel & little SAND (working surface)
				0.75-3 Brown
				3' STEEL PLATE ENCOUNTERED. appears Hollow below plate. could not penetrate.
				Between HOLDERS; 0-4.25 Dark grey to black f-m SAND & Gravel (Fill) includes Bricks, coal ASH etc. etc. mild odor. WATER at 4' bgs.



Test Pit Plan



Groundwater		
Date	Time (Hrs. after Completion)	Depth (Feet)

EMR

TEST PIT LOG

Page 1 of 2

Project: ConEdison Pemart — Date: 3/22/06 — Test Pit: TP-3

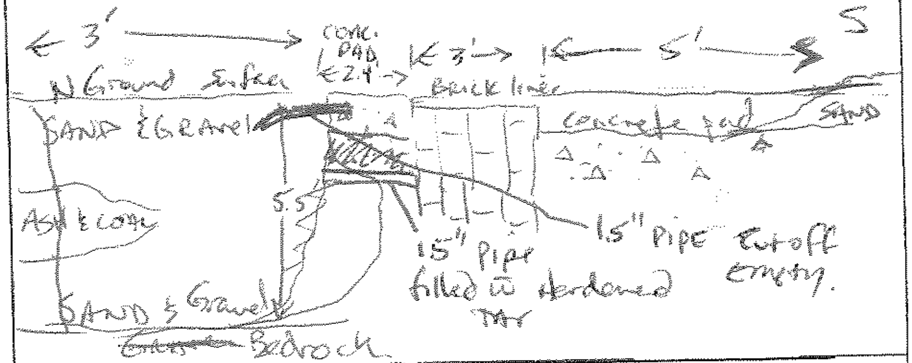
Project: 01869-116 — Location: Former HOLDER Area G

Total D: — Contractor: ADT

Equipment Used: — Logged By: J. Imhoff

Remarks: Sample TP3(5-5.5) collected for VOC, SVOC, CN⁻ & TAL Metals; t=1210

Elev. Feet	Depth Feet	Sample: Type & No.	Sample: Depth Range	Soil & Rock Description & Comments
				INSIDE HOLDER 0-0.5 BROWN SAND & GRAVEL (FILL) includes Brick fragments, Rock fragments, COAL etc.
				OUTSIDE HOLDER:
				0-2'. Brown f-m SAND and GRAVEL
				2-3.5' COAL ASH & COAL
				3.5-5' Brown f-m SAND and gravel
				lower 0.25' Black & moderate odor (MGP like) with sheen.
				WATER at 4.5' BGS; slight odor & sheen.



Test Pit Plan	Groundwater		
	Date	Time (Hrs. after Completion)	Depth (Feet)
North			

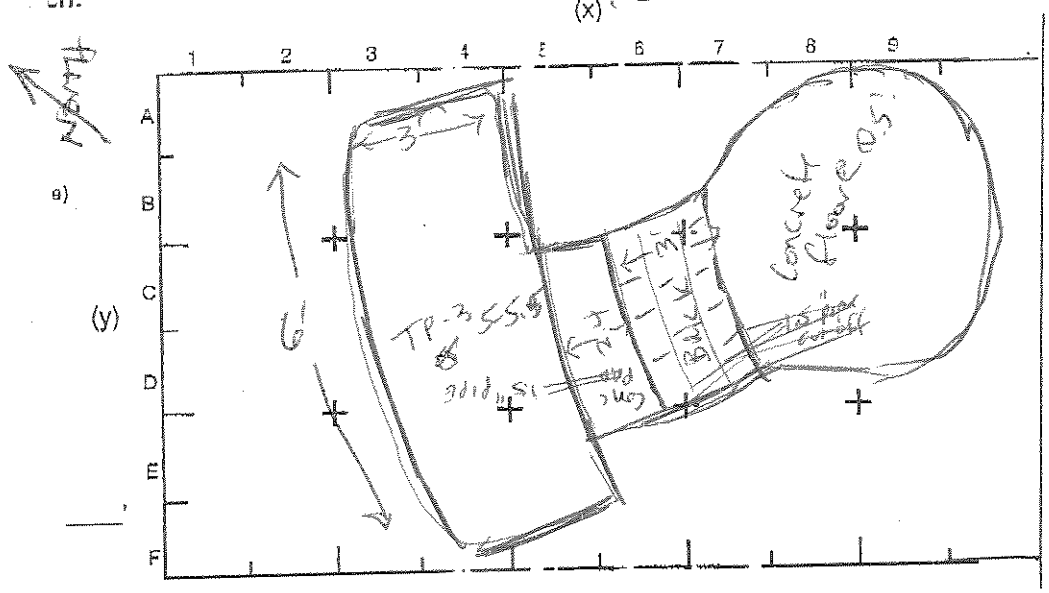
Title: Test Pit TP3 ConEd Pemart | Date: 3/22/06 | Dwg. | Project: ConEd Pemart | Disposal

ENSR Test Pit Profile Log

Project: Consolidation Pemart Area
Project No.: 01869-116
Project Location: Peekskill, New York
Test Pit No.: TP-3
Date: 3/22/06
Inspector: J. Imhoff

Field Sketch:

Birds eye View



Scale: ____'

(circle one)

Measurements:
(x) = ____
(y) = ____
Variable (V) = ____

Sample Summary:

Sar	Sample I.D.	Time	Depth (ft)	Hor. Loc.	Matrix	Misc. Information	PID
A	TP-3 1'	1200	1'				4.6
B	TP3 3'	1202	3'			ASH & COAL	6.3
C	TP-3 5-5.5	1210	5-5.5			WET SAND at bedrock interface Moderate odor (MGP-like). Sheen	37.4ppm
D							
E							
F							
G							

ENSR 1052

Test Pit Log

Test Pit ID: TP13-01

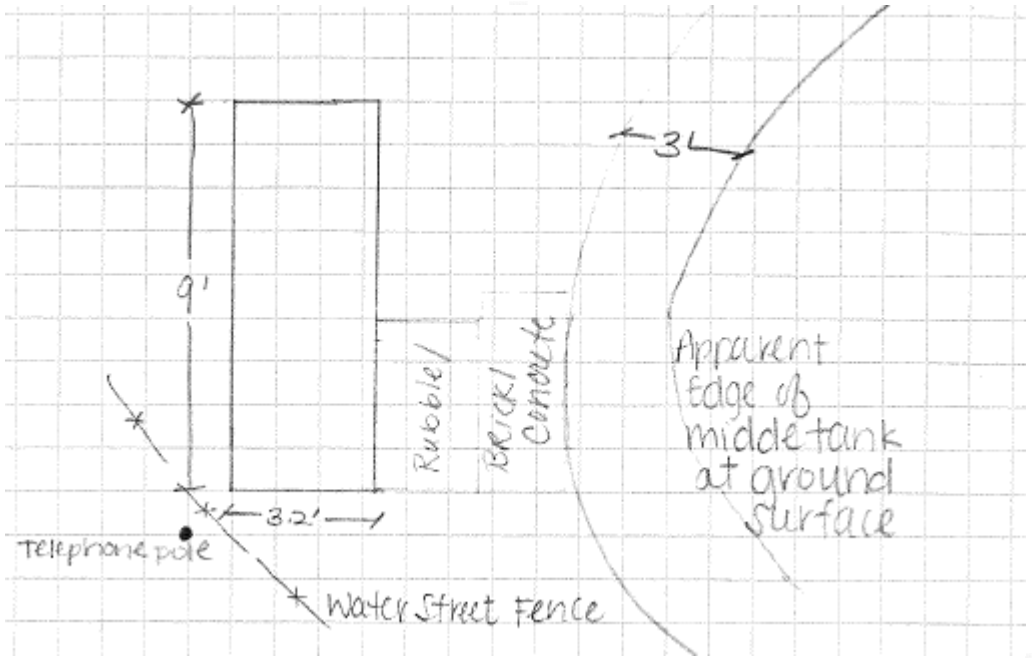
Client:	Con Edison Inc.	**Date/Time:**	10.1.2013 / 0745
Project:	Pre-Design Investgation Pemart Ave.	**Weather:**	Clear
Location:	Former Pemart Avenue Works MGP Site Peekskill, New York	**Temperature:**	50° F
Project #:	B0043029.0005	**Wind:**	--
Logged By:	K. Warren	**Subcontractor:**	Parratt Wolff Inc.
Coordinates:	Unknown	**Equipment:**	Case 580N Backhoe

Sketch of Test Pit Layout:

Plan View

Not to scale

N



Test Pit Dimensions:	**9 ft x 3.2 ft**	**Total Depth:**	**2.5 ft**	**Depth to Water:**	**--**

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0'-0.4'	-	5 inches of Topsoil	--
0.4'-2.5'	-	(Fill) Dark brown medium SAND, some gravel, poorly graded, little clay, angular, low plasticity, little organics (wood chips, roots), cobbles (broken up Gneiss), concrete and bricks, slight MGP odor, moist.	--
		Termination due to brick, broken up rock and concrete at 2.5 ft bgs.	--

Notes:

Appears to be a layer of red brick underlying topsoil. All Fill materials.

Photograph Summary:

01	
02	
03	

1/10/2017

Test Pit Log

Test Pit ID: TP13-02

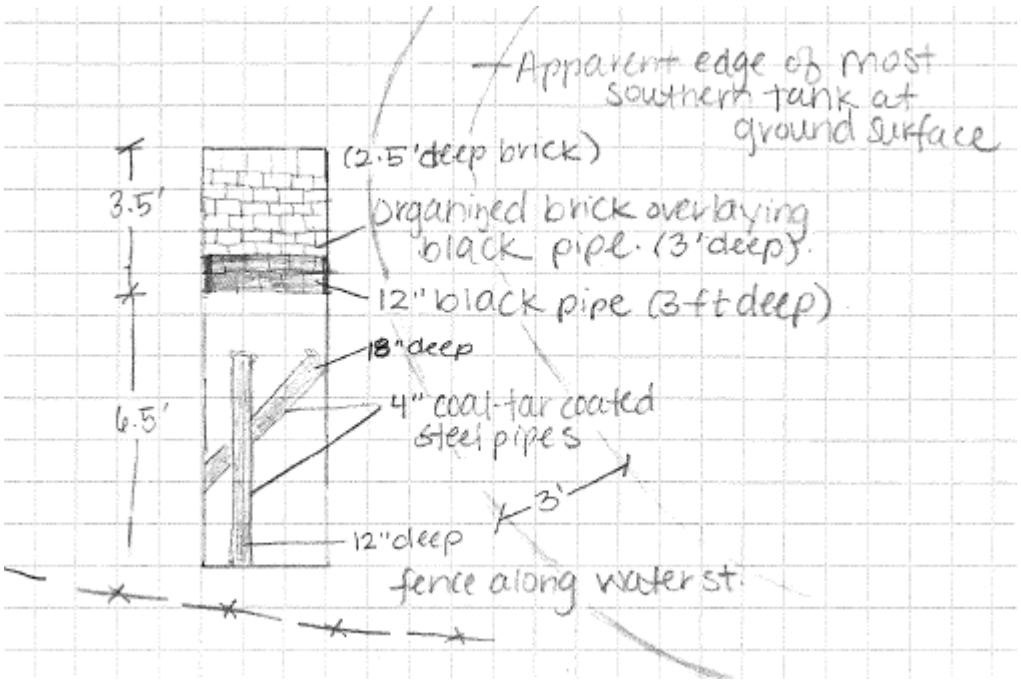
Client:	Con Edison Inc.	**Date/Time:**	10.1.2013 / 0900
Project:	Pre-Design Investgation Pemart Ave.	**Weather:**	Clear
Location:	Former Pemart Avenue Works MGP Site Peekskill, New York	**Temperature:**	60° F
Project #:	B0043029.0005	**Wind:**	--
Logged By:	K. Warren	**Subcontractor:**	Parratt Wolff Inc.
Coordinates:	Unknown	**Equipment:**	Case 580N Backhoe

Sketch of Test Pit Layout:

Plan View

Not to scale

N



Test Pit Dimensions:	**10' x 3'**	**Total Depth:**	**4'**	**Depth to Water:**	**--**

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
Ground Surface		ConEdison Landscaper's Rock/sand pile at Ground Surface	
0'-0.4'	-	5 inches of Topsoil	--
0.4'-3'	-	North End (Fill) Concrete and Brick (unorganized) overlying 12 inch black pipe. Top of pipe at 3 ft bgs.	--
0.4'-4'	-	(Fill) Dark brown medium Sand, some gravel, poorly graded, angular, little silt/clay, non-plastic to low plasticity, little organics, strong MGP odor, moist (See notes below for information on additional pipes encountered)	--

Notes:

Two coal tar coated 4 inch steel pipes encountered and removed within test pit limits. 1 pipe running perpendicular to road, ~12 inches

Photograph Summary:

01	

deep, 1 pipe approximately 45° into road, ~18 inches deep.

02	
03	

Test Pit Log

Test Pit ID: TP13-03

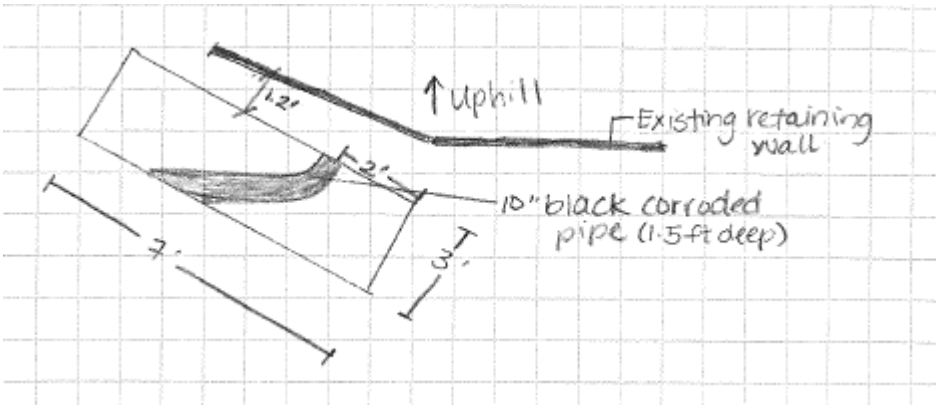
Client:	Con Edison Inc.	**Date/Time:**	10.1.2013 / 1000
Project:	Pre-Design Investgation Pemart Ave.	**Weather:**	Sunny
Location:	Former Pemart Avenue Works MGP Site Peekskill, New York	**Temperature:**	65° F
Project #:	B0043029.0005	**Wind:**	--
Logged By:	K. Warren	**Subcontractor:**	Parratt Wolff Inc.
Coordinates:	Unknown	**Equipment:**	Case 580N Backhoe

Sketch of Test Pit Layout:

Plan View

Not to scale

N



Test Pit Dimensions:	**7' x 3'**	**Total Depth:**	**2.5'**	**Depth to Water:**	**--**

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0'-0.4'	-	5 inches of Topsoil	--
0.4'-2.5'	-	(Fill) Dark brown and light brown Silty Sand, some gravel, poorly graded, angular, non-plastic, trace organics, moist, concrete and trace bricks along the south wall.	--
2.5'	-	TP terminated due to encountering 10 inch steel black pipe.	--

Notes:

10 inch steel pipe encountered running at ~45° from the south wall to the north wall across test pit. The pipe curves at a 30° angle leading directly north uphill. Pipe appears to have had concrete enclosure surrounding the pipe, concrete enclosure no longer intact.

Photograph Summary:

01	
02	

03	

Test Pit Log

Test Pit ID: TP13-04

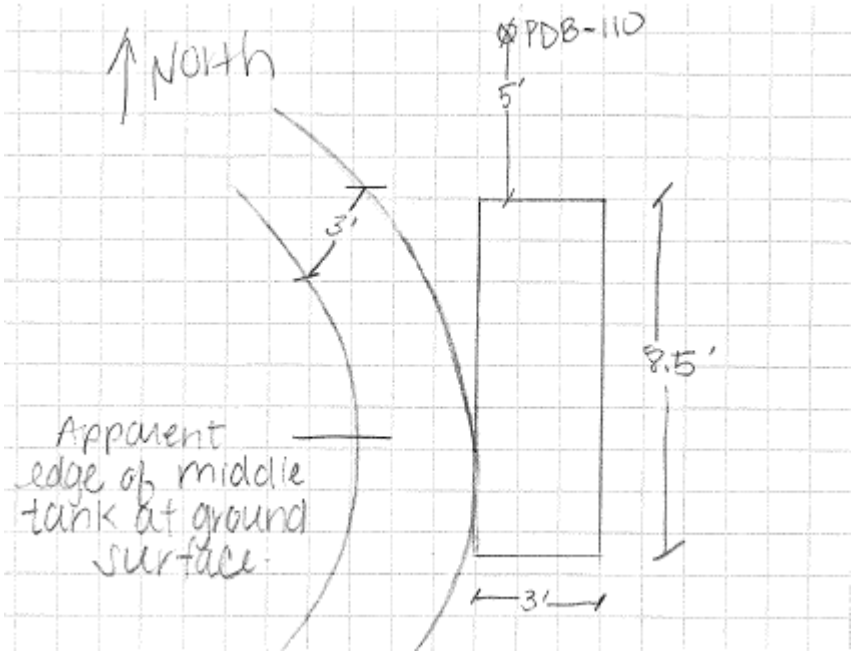
Client:	Con Edison Inc.	**Date/Time:**	10.1.2013 / 1100
Project:	Pre-Design Investgation Pemart Ave.	**Weather:**	Sunny
Location:	Former Pemart Avenue Works MGP Site Peekskill, New York	**Temperature:**	70° F
Project #:	B0043029.0005	**Wind:**	--
Logged By:	K. Warren	**Subcontractor:**	Parratt Wolff Inc.
Coordinates:	Unknown	**Equipment:**	Case 580N Backhoe

Sketch of Test Pit Layout:

Plan View

Not to scale

N



Test Pit Dimensions:	**8' x 3'**	**Total Depth:**	**4.5'**	**Depth to Water:**	**4.2'**

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0'-0.4'	-	5 inches of Topsoil	--
0.4'-1.2'	-	(Fill) Light brown Silty fine Sand, poorly graded, subrounded to subangular, non-plastic, moist, organics present, trace concrete and brick	--
1.2'-4.5'	-	(Fill) Brown Sand, some gravel, poorly graded, subangular, trace silt, non-plastic, moist.	--

Notes:

10 inch steel pipe encountered running at ~45° from the south wall to the north wall across test pit. The pipe curves at a 30° angle leading directly north uphill. Pipe appears to have had concrete enclosure surrounding the pipe, concrete enclosure no longer intact.

Photograph Summary:

01	

02	
03	

Test Pit Log

Test Pit ID: TP13-05

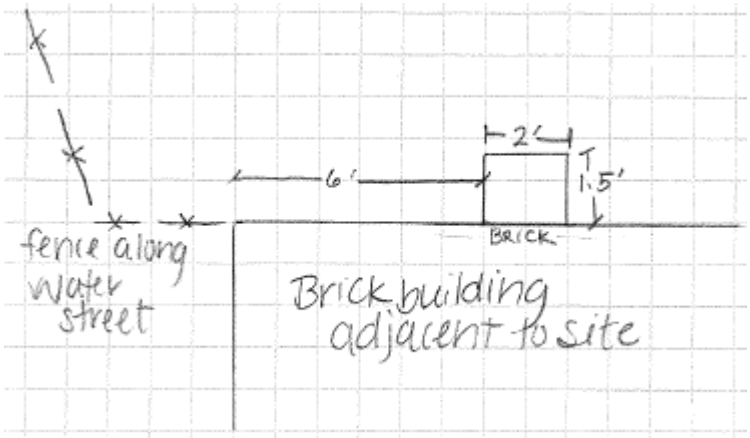
Client:	Con Edison Inc.	**Date/Time:**	10.1.2013 / 1400
Project:	Pre-Design Investgation Pemart Ave.	**Weather:**	Sunny
Location:	Former Pemart Avenue Works MGP Site Peekskill, New York	**Temperature:**	70° F
Project #:	B0043029.0005	**Wind:**	--
Logged By:	K. Warren	**Subcontractor:**	Parratt Wolff Inc.
Coordinates:	Unknown	**Equipment:**	Case 580N Backhoe

Sketch of Test Pit Layout:

Plan View

Not to scale

N



Test Pit Dimensions:	**1.5' x 2'**	**Total Depth:**	**4.2'**	**Depth to Water:**	**-**

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
Ground Surface	-	ConEdison Landscaper's large diameter rocks/boulders at Ground Surface	
0'-4.2'	-	(Fill) Brown Silty Sand, some gravel, poorly graded, subangular, non-plastic, organics/roots present.	--
	-	Brick foundation of building to 4.2' (termination) on south side of TP.	--
		TP terminated due to caving sides.	

Notes:

Adjacent to building on southeast end of proposed sheetpile alignment to look at building foundation.
Used excavator to 1.5 ft below grade, continued removing soil along wall with shovel to 4.2 ft.
Brick building with 4.5 ft concrete aced brick wall above ground

Photograph Summary:

01	
02	
03	

surface. Brick foundation below grade.	

Test Pit Log

Test Pit ID: TP13-06

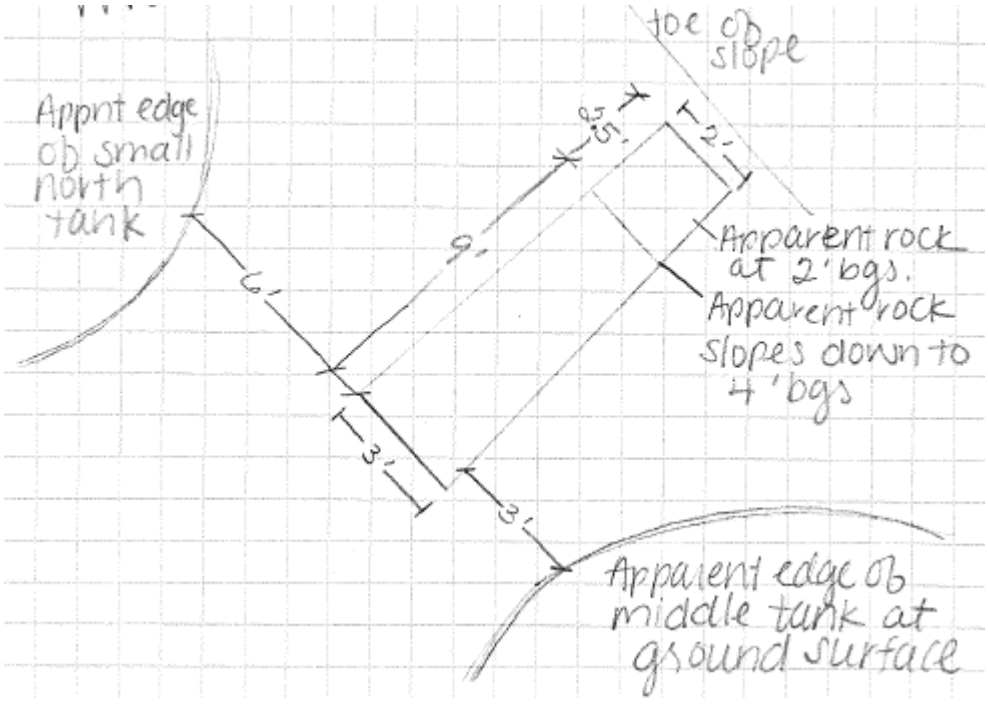
Client:	Con Edison Inc.	**Date/Time:**	10.1.2013 / 1530
Project:	Pre-Design Investgation Pemart Ave.	**Weather:**	Sunny
Location:	Former Pemart Avenue Works MGP Site Peekskill, New York	**Temperature:**	70° F
Project #:	B0043029.0005	**Wind:**	--
Logged By:	K. Warren	**Subcontractor:**	Parratt Wolff Inc.
Coordinates:	Unknown	**Equipment:**	Case 580N Backhoe

Sketch of Test Pit Layout:

Plan View

Not to scale

N



Test Pit Dimensions:	8' x 3'	Total Depth:	4.3'	Depth to Water:	4.2'

Depth Interval (feet)	PID Screening Result (ppm)	Description of Soil/Material	Samples Collected
0'-0.4'	-	5 inches of Topsoil	--
0.4'-3.2'	-	(Fill) Dark brown Sand, some gravel, poorly graded, little silt, non-plastic, trace organics, concrete and bricks. (North side – top of rock at 2 ft)	--
3.2'-4.2'	-	(Fill) light brown Silty Sand, some gravel, poorly graded, angular, non-plastic to low plasticity, bricks, organics, no MGP odor. (South end – top of rock at 4.3 ft)	--
		TP terminated on top of apparent rock.	

Notes:

Against north wall of proposed limits between west tank and middle tank.

Photograph Summary:

01	
02	

No sheen or MGP odor present in TP. Top of rock slopes steady from 2 ft to 4.3 ft bgs	**03**	

ATTACHMENT 2

OSI Operations Report (OSI Report No. 14ES055)

MARINE AND FRESHWATER
SURVEY SERVICES

OCEAN SURVEYS, INC.
129 MILL ROCK ROAD EAST
OLD SAYBROOK, CT 06475
TEL. (860) 388-4631 FAX (860) 388-5879
www.oceansurveys.com

December 2, 2014

Mr. Eric Dievendorf
ARCADIS U.S., Inc.
6723 Towpath Road, PO Box 66
Syracuse, NY 13214-0066

SUBJECT: OPERATIONS REPORT (OSI REPORT NO. 14ES055)
MULTI-SENSOR MARINE GEOPHYSICAL SURVEY
PEEKSKILL BAY, NEW YORK

Dear Mr. Dievendorf:

Ocean Surveys, Inc. (OSI) is pleased to submit the following survey report documenting a multi-sensor geophysical survey performed on 11 November 2014 in Peekskill Bay just offshore of the former Pemart Avenue Works MGP site in Peekskill, NY. The objective of this investigation was to identify surface and subsurface obstructions within two sites of MGP impact prior to a planned sediment remediation project.

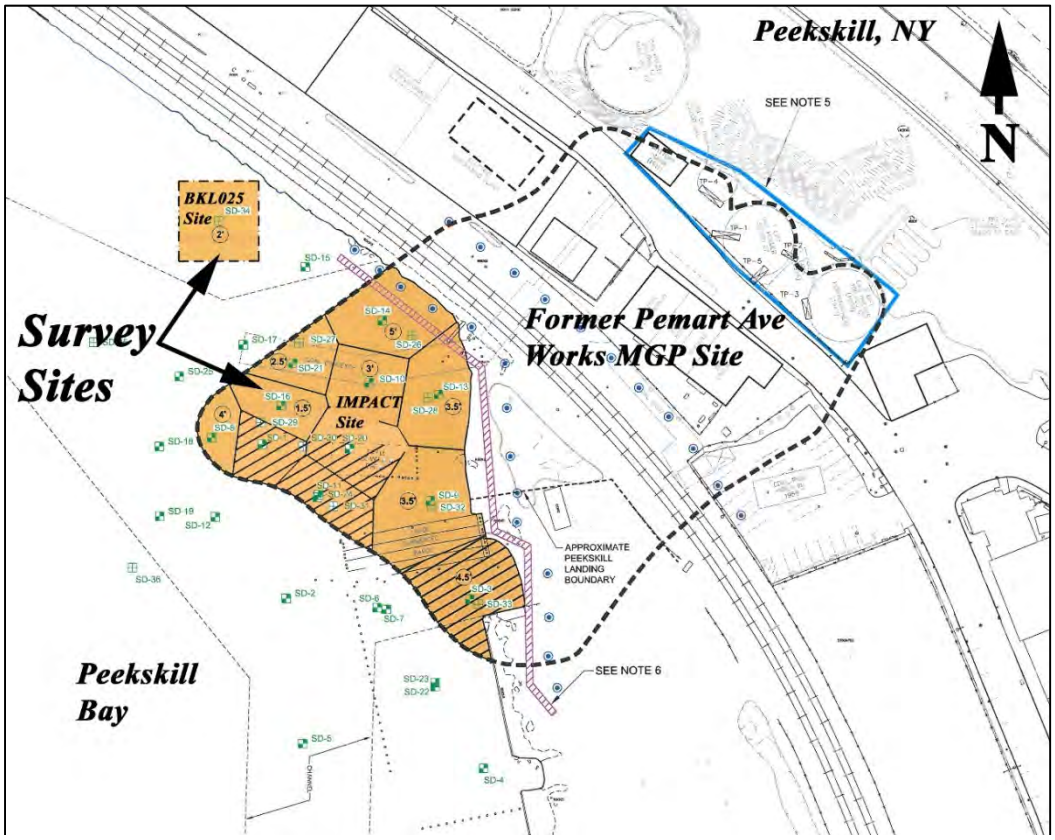


Figure 1. Project site location map identifying survey areas investigated. Map modified and taken from Figure 4 of ARCADIS's Alternate Analyses Report to Con Edison.

Summary of Field Investigation and Equipment

Prior to the field investigation, ARCADIS U.S., Inc. (ARCADIS) provided OSI an ACAD drawing file and accompanying EXCEL spreadsheet identifying the limits of the proposed survey (PEMART-PTS.DWG and PEMART-PTS.XLSX, dated 11/7/2014). Based on this information geophysical surveys were performed within two sites offshore of the former Pemart Avenue Works MGP site, referred to as IMPACT (defined by layers in the ARCADIS drawing) and BKL025 (SD-34 site). BKL025, the smaller of the two sites is square, measures 60 x 60 feet and encompasses an area of 3,600 ft^2 while the larger IMPACT site is irregular shaped extending approximately 200 feet into Peekskill Bay from shore and encompasses an area of approximately 40,100 ft^2. Within the accessible areas of the sites subbottom profiler and magnetometer data were acquired along a series of tracklines generally oriented east-west and spaced 20-25 feet apart. As a means of providing quality control and confirmation of data acquired along the primary tracklines, additional data were acquired along a series of cross or "tie" lines set roughly perpendicular to the primary tracklines. Side scan sonar imagery was acquired along specific tracks within each site with the intent of providing 100 percent overlapping coverage of the bottom.

Survey operations were performed by a 40-hour HAZWOPER trained field crew including a marine geologist/geophysicist and vessel helmsman aboard the shallow draft survey vessel, *R/V Skimmer* (Figure 2). During the investigation a representative from ARCADIS (Ms. Amanda Kohler) accompanied the field crew aboard the survey vessel and provided oversight. Following conclusion of the survey Ms. Kohler performed on-site current monitoring activities from the survey vessel.

Figure 2. Shallow draft vessel *R/V Skimmer* used for survey operations.

The primary equipment employed to complete the investigation included:

- Trimble Differential GPS Positioning System (DGPS)
- HYPACK navigation and data-logging computer system
- EdgeTech "Chirp" 2-16kHz subbottom profiler
- EdgeTech dual-frequency (600 and 1600 kHz) side scan sonar system
- Two Geometrics marine cesium magnetometers configured as a transverse gradiometer

*Manufacturer specification sheets for systems utilized on this project are available upon request.

All survey investigations were performed in feet and referenced horizontally to the New York State Plane Coordinate System, East Zone NY-3101 (NAD83). Prior to commencement of the survey, a navigation check was performed at a known survey control point near the site to ensure manufacturer stated accuracy of the onboard vessel positioning system.

Data Products

Upon completion of the field investigation, the data sets were processed and reviewed in an attempt to document riverbed and subsurface obstructions within the BKL025 and IMPACT sites. The results of this investigation are presented in plan view format on a single drawing sheet (11x17 inch) constructed at a horizontal scale of 1 inch = 50 feet entitled Drawing 1. The project drawing includes a sonar mosaic of the entire area investigated overlain by survey tracklines, individual magnetic anomalies and sonar targets identified within the sites. Results of the onsite current monitoring, performed by the on-board ARCADIS representative, are not included in this report.

The project drawing is included in Attachment 1. A digital file of the drawing (ACAD format) is provided on a disk accompanying this report. Summary tables of magnetic anomalies and side scan sonar targets are included in Attachment 2. Images of individual sonar targets are presented in Attachment 3. All paper and digital field records acquired during the course of the survey have been annotated, labeled, and will be archived in-house.

Data Analysis and Results

The following sections present the results of a multi-sensor geophysical survey conducted in November 2014. Seasonal variations, storm events, and/or human influence following the completion of the investigation, may alter the conditions reported herein.

Side scan sonar imagery was reviewed and a sonar mosaic was constructed to identify targets/features on the riverbed that stood out in their surroundings. Sonar targets are represented by green squares overlain on the sonar mosaic and are keyed to a summary table presented in Attachment 2. Magnetometer data were reviewed to identify local anomalies that are related to objects/features present on or buried below the riverbed containing ferrous mass. It should be noted that the magnetometer can only detect objects with ferrous mass within a reasonable distance from the sensor. If objects have little or no ferrous content or were located deep below the riverbed they could go undetected by the sensor. Magnetometer data acquired in

both sites were heavily influenced by structures containing significant ferrous metal within or in close proximity to the sites including a railroad, buildings, sunken barges, and rip-rap placed along the shoreline. Where possible isolated anomalies have been differentiated from the background field and plotted on the project drawing. Magnetic anomalies are represented by red triangles overlain on the sonar mosaic and are keyed to a summary table presented in Attachment 2. Sonar targets and anomalies identified outside the site limits provided by ARCADIS are not included in this reporting.

The subbottom profiler attained minimal acoustic penetration below the riverbed in both sites. The inability of the profiler to penetrate the riverbed is most likely due to a high concentration of organic-rich, gaseous sediments in the nearsurface sediments. This is a common characteristic of fresh water bays, where slow moving water allows fine grained material and terrigenous debris (leaves, twigs, soil, etc.) to accumulate. The breakdown of organic material creates hydrocarbon gases (methane) that prevent the penetration of acoustic signals. Due to the lack of acoustic penetration, reflectors related to geologic structures or man-made debris were not able to be resolved in the subsurface in either site.

IMPACT Site

Review of side scan sonar imagery acquired within the IMPACT site shows the riverbed is generally characterized as a debris field extending offshore approximately 170 feet and encompassing roughly 10,800 ft^2. Due to the concentration of features detected within this debris field individual sonar targets have not been identified, rather they are grouped together and encircled on the project drawing. The debris field appears to be comprised largely of pilings and timbers that may be remnants of a dock, small sunken barge, and possibly a coal conveyer that extended into the river related to the former MGP site. Located approximately 35 feet south of the debris field is a partially submerged large wooden barge extending approximately 80 feet offshore and measuring 30 feet wide. As illustrated in Figure 3 the sunken barge restricted access to southern portion of the site. Together, the debris field and large sunken barge account for more than 35 percent of the entire IMPACT site.

Figure 3. Left –Partially submerged barge. Note metal spikes at and just below the waterline. Right – Looking south from within the IMPACT site showing the partially submerged barge as well as exposed pilings near the debris field.

Magnetometer data acquired within the IMPACT site document that the features in the debris field contain a significant amount of ferrous mass that heavily influences the local magnetic field and made individual anomaly resolution impossible. To best represent the concentration of ferrous metals in the debris field a quasi-analytical magnetic signal map has been constructed (Figure 4). This map simplifies the magnetic field signatures and shows the majority of ferrous mass is located in the southern half of the debris field and along the shoreline.

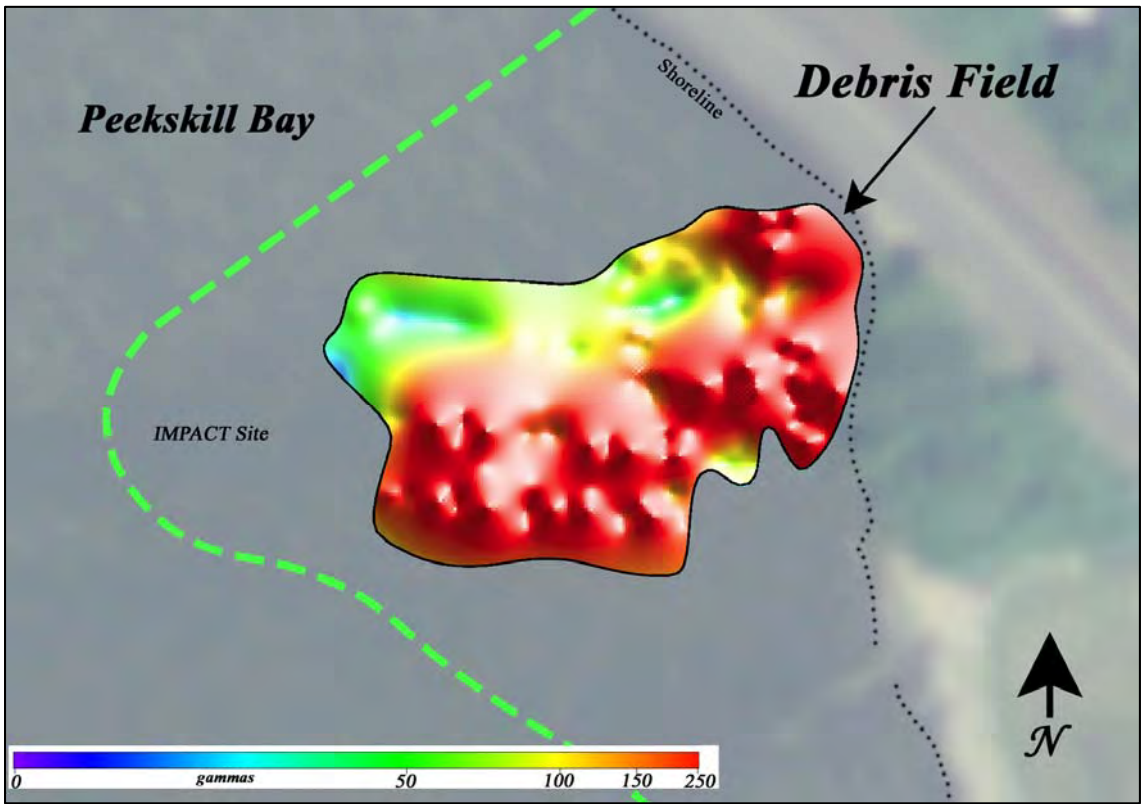


Figure 4. Quasi-analytical signal map constructed over the debris field. Illustrates the concentration of ferrous mass is located within the debris field relative to the entire site. Color values are presented in the legend, lower left corner of the figure, and are in gammas. Note – gamma values are not full field.

Outside of the debris field individual sonar targets and magnetic anomalies have been identified within the IMPACT site. A total of 41 individual sonar targets were identified outside the debris field limits. In general, most targets identified are isolated and exhibited less than three feet of relief above the riverbed were no greater than 29 feet in overall length. Seven sonar targets (SS-13, 14, 23, 27, 31, 32 and 33) had correlative magnetic anomaly associations. In total, 44 individual magnetic anomalies were identified outside the debris field. Anomaly sizes ranged from 70 to 3,818 gammas.

BKL025 Site

Side scan sonar imagery acquired in the BKL025 site shows that it is generally featureless with the exception of several small targets and anomalies. In total, six individual sonar targets (SS36-41) and five magnetic anomalies (BKL-4, 6, 7, 8, 10) were detected in the site. Anomalies BKL-

8 and 10 may be associated with sonar targets SS40 and 41 respectively. In general, isolated targets identified within the site are relatively small and exhibit minimal relief above the riverbed (<1 foot). All of the targets identified appear to be debris including a discarded tire (SS-37). Anomalies detected within this site were only observed on a single survey line and had no correlative side scan sonar target association suggesting they are possibly buried or masked in their surroundings. Anomalies detected in the site ranged in amplitude from 9 to 496 gammas.

Summary and Recommendations

A multi-sensor geophysical obstruction survey was performed in Peekskill Bay, NY to support a sediment remediation project offshore the former Pemart Avenue Works MGP site. During this investigation side scan sonar, magnetometer, and subbottom profiler data were acquired within two sites referred to as IMPACT and BKL025 to identify surface and subsurface obstructions.

A large portion of the riverbed in the IMPACT site is characterized by a debris field located roughly central to the site as well as a partially submerged large wooden barge in the southern portion of the site. Magnetometer data acquired suggest that the debris field and barge contain a significant amount of ferrous metal. Outside the debris field in the IMPACT and BKL025 sites individual sonar targets and magnetic anomalies were identified. Most targets identified in these areas are isolated and exhibit only minimal relief. Several targets had correlative magnetic anomaly associations. Unfortunately due to site conditions the subbottom profiler did not attain significant penetration in either site and could not be used to resolve subsurface conditions and buried debris. As a consequence, there could be additional non-ferrous debris buried within the sites. Additional investigations including probing may be warranted to further explore the extents of subsurface debris within the IMPACT and BKL025 sites.

We appreciate the opportunity to support ARCADIS U.S., Inc. on this project and look forward to continuing this working relationship in the future. If you have any questions regarding any aspect of the survey, or we can be of service in any other capacity, please do not hesitate to call me.

Sincerely,

OCEAN SURVEYS, INC.

Jeffrey P. Motti
Geophysical Project Manager

JPM/lf
Attachments

ATTACHMENT 1

PROJECT DRAWING
REDUCED VERSION

PEEKSKILL, NEW YORK

E 648,000

E 648,250

N 895,750

N 895,500

RAILROAD TRACKS

RIP RAP

TRANSFORMERS

ELECTRIC GENERATING PLANT

OLD PEMART AVE

BATTERY HOUSE

TP-4

GAS HOLDER

FORMER PEMART AVENUE WORKS MGP SITE

COAL CONVEYER

GENERATING HOUSE

BLOCK HOUSE

STORAGE

PURIFYING HOUSE

COAL SHED

BKL025 SITE

IMPACT SITE

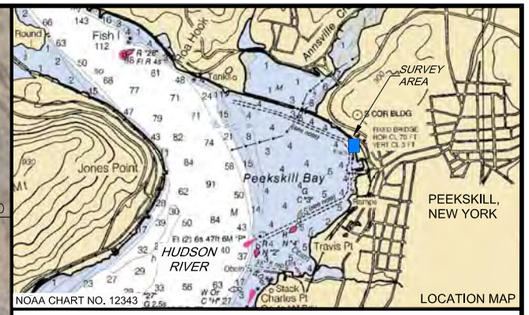
DEBRIS FIELD

BARGE

BARGE

RIP RAP

PEEKSKILL BAY



LEGEND

NAVIGATION

- SURVEY VESSEL TRACKLINE WITH EVENT NUMBERS
- SIDE SCAN SONAR TARGET
- MAGNETIC ANOMALY
- SURVEY AREA LIMITS (APPROXIMATE EXTENTS OF IMPACT)
- DEBRIS FIELD
- FORMER MGP STRUCTURES

NOTES:

1. GRID SYSTEM IS IN FEE AND IS THE NEW YORK STATE PLANE COORDINATE SYSTEM, EAST ZONE 3101, NAD 83.
2. GEOLOGICAL INTERPRETATIONS ARE BASED ON THE ANALYSIS OF SIDE SCAN SONAR AND MAGNETOMETER DATA. FOR ADDITIONAL INFORMATION REGARDING THE INTERPRETATION PRESENTED REFER TO OSI FINAL REPORT NO. 14ES055.
3. FORMER MGP STRUCTURES PLOTTED IN BROWN ARE APPROXIMATE AND WERE DIGITIZED FROM A PDF PROVIDED BY ARCADIS ENTITLED "ALTERNATIVE 3" FIGURE 4. SURVEY AREA LIMITS ARE BASED ON A DRAWING PROVIDED BY ARCADIS ENTITLED "PEMART-PTS.DWG".
4. 2013 LAND IMAGERY ARE PORTIONS OF DIGITAL ORTHOPHOTO QUADRANGLES OBTAINED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS).
5. THE INFORMATION PRESENTED ON THIS DRAWING REPRESENTS THE RESULTS OF A SURVEY PERFORMED BY OCEAN SURVEYS, INC. ON 11 NOVEMBER 2014 AND CAN ONLY BE CONSIDERED AS INDICATING THE CONDITIONS EXISTING DURING THAT TIME. REUSE OF THIS INFORMATION BY CLIENT OR OTHERS BEYOND THE SPECIFIC SCOPE OF WORK FOR WHICH IT WAS ACQUIRED SHALL BE AT THE SOLE RISK OF THE USER AND WITHOUT LIABILITY TO OSI.

SCALE: 1"=50'

50 0 50

OCEAN SURVEYS, INC.

OLD SAYBROOK, CONNECTICUT

PREPARED FOR: ARCADIS U.S., INC.

MULTISENSOR MARINE GEOPHYSICAL SURVEY

SIDE SCAN SONAR MOSAIC &
MAGNETOMETER RESULTS
SEDIMENT REMEDIATION PROJECT
PEEKSKILL BAY
PEEKSKILL, NEW YORK

DRAWING 1 SHEET 1 OF 1
OSI JOB NO. 14ES055
2 DECEMBER 2014

ATTACHMENT 2

SUMMARY TABLE OF MAGNETIC ANOMALIES
&
SUMMARY TABLE OF SIDE SCAN SONAR TARGETS

Summary of Magnetic Anomalies

IMPACT Site

Magnetic Anomaly	Easting[1]	Northing[1]	Type[2]	Amplitude[3]	Duration[4]	Sensor Altitude[4]
IMP-1	648252	895515	M+	3813	3	3
IMP-2	648144	895513	M+	245	15	9
IMP-3	648142	895502	M+	141	14	9
IMP-4	648168	895498	M+	128	6	9
IMP-5	648200	895505	M+	119	5	7
IMP-6	648224	895494	M+	237	5	5
IMP-7	648231	895505	M+	165	3	4
IMP-8	648244	895504	M+	395	3	4
IMP-9	648251	895493	M+	330	3	4
IMP-10	648263	895492	M-	700	2	3
IMP-11	648110	895583	M-	226	11	8
IMP-12	648138	895614	D	940	15	7
IMP-13	648136	895603	D	1018	15	7
IMP-14	648171	895608	M+	102	4	6
IMP-15	648170	895597	M+	301	6	6
IMP-16	648195	895607	M+	465	7	6
IMP-17	648158	895625	M+	299	6	7
IMP-19	648171	895624	M+	143	5	7
IMP-20	648236	895622	M+	1595	3	4
IMP-21	648162	895650	M+	1127	12	7
IMP-22	648167	895660	M+	849	10	7
IMP-23	648203	895654	M-	70	4	6
IMP-24	648216	895641	M+	269	5	5
IMP-25	648218	895652	M+	239	3	5
IMP-27	648193	895656	M-	327	4	5
IMP-28	648211	895657	M+	205	3	5
IMP-29	648219	895650	M+	173	3	5
IMP-30	648230	895635	D	665	5	5
IMP-31	648222	895629	M-	292	3	5
IMP-32	648215	895451	M+	698	5	8
IMP-33	648226	895452	M+	772	4	8
IMP-34	648249	895459	M+	575	4	6

Magnetic Anomaly	Easting[1]	Northing[1]	Type[2]	Amplitude[3]	Duration[4]	Sensor Altitude[4]
IMP-35	648260	895457	M+	1021	4	7
IMP-36	648064	895575	D	480	19	10
IMP-37	648073	895580	D	517	20	10
IMP-38	648116	895524	D	256	19	10
IMP-39	648159	895637	M+	336	10	4
IMP-40	648164	895647	M+	449	11	7
IMP-41	648191	895657	M-	231	4	6
IMP-42	648198	895666	M-	437	5	6
IMP-43	648227	895629	M-	236	4	3
IMP-44	648216	895629	M-	264	3	3

BKL025 Site

Magnetic Anomaly	Easting[1]	Northing[1]	Type[2]	Amplitude[3]	Duration[4]	Sensor Altitude[4]
BKL25-4	648038	895703	M+	31	6	9
BKL25-6	648035	895725	M+	11	3	3
BKL25-7	648035	895740	M+	9	3	8
BKL25-8	648085	895729	M+	9	2	8
BKL25-10	648074	895739	M+	496	5	8

1 - Coordinates are in feet and are referenced to the New York East State Plane Zone (NY-3101).
2 – M+ - positive monopole, M- - negative monopole, D - dipole.
3 - Amplitude is measured in Gammas.
4 - Duration and Sensor Altitude are measured in feet.
5 – Anomaly numbering may not be sequential.

Summary Table of Side Scan Sonar Targets

Sonar Target	Easting[1]	Northing[1]	Length[2]	Width[2]	Height[2]	Magnetic Anomaly	Description
SS1	648251	895413	2	2	1		Tires
SS2	648229	895423	6	1	1		Debris
SS3	648255	895425	8	1	1		Submerged tree and tires
SS4	648246	895427	5	3	1		Debris
SS5	648240	895435	1	1	1		Debris
SS6	648225	895436	2	2	1		Tire
SS7	648210	895439	14	1	1		Debris
SS8	648265	895441	2	2	1		Tire
SS9	648225	895441	4	1	1		Debris
SS10	648232	895445	4	1	1		Debris
SS11	648254	895450	29	2	1		Piling
SS12	648085	895557	4	1	2		Piling
SS13	648077	895569	4	1	2	IMP-37	Piling
SS14	648071	895570	3	1	1	IMP-36	Piling
SS15	648089	895578	3	1	2		Piling
SS16	648078	895593	4	1	2		Piling
SS17	648199	895611	20	1	1		Piling
SS18	648162	895618	9	1	1		Piling
SS19	648144	895621	19	1	1		Piling
SS20	648209	895623	2	1	1		Debris
SS21	648212	895627	10	1	1		Piling
SS22	648205	895628	3	1	1		Debris
SS23	648217	895632	10	1	1	IMP-44	Piling
SS24	648208	895635	8	1	1		Piling
SS25	648190	895636	7	1	1		Piling
SS26	648196	895641	2	2	1		Tire
SS27	648158	895642	6	1	1	IMP-39	Piling
SS28	648180	895644	5	3	1		Debris
SS29	648213	895644	7	1	1		Piling
SS30	648160	895645	9	1	1	IMP-40	Piling
SS31	648159	895649	1	1	1	IMP-21	Debris
SS32	648199	895658	4	2	1	IMP-41	Debris
SS33	648191	895660	16	1	1	IMP-22	Piling
SS34	648177	895667	9	1	1		Piling
SS35	648184	895669	7	1	1		Piling

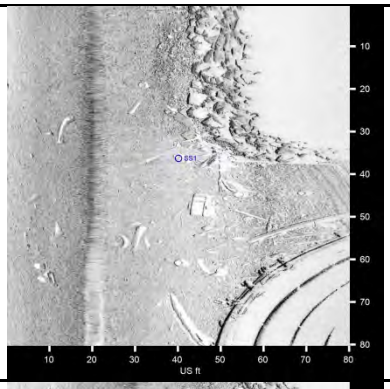
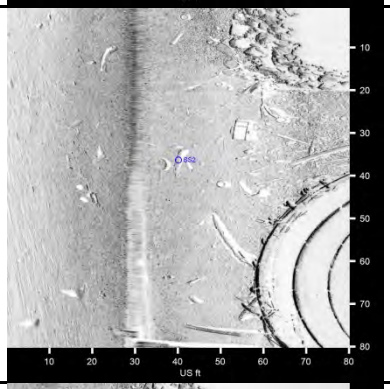
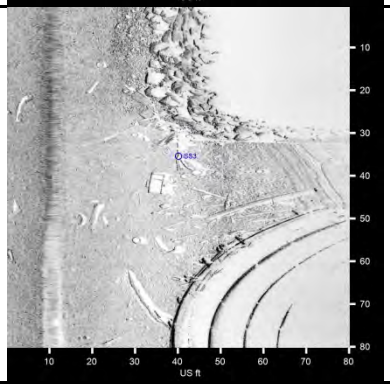
Sonar Target	Easting[1]	Northing[1]	Length[2]	Width[2]	Height[2]	Magnetic Anomaly	Description
SS36	648038	895696	4	1	1		Debris
SS37	648074	895704	2	2	1		Tire
SS38	648062	895714	2	1	1		Debris
SS39	648063	895720	2	1	1		Debris
SS40	648092	895729	1	1	1	BKL25-8	Debris
SS41	648086	895738	1	1	1	BKL25-10	Debris

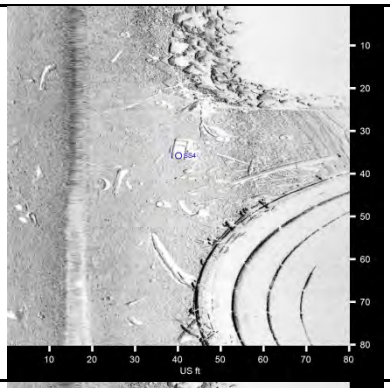
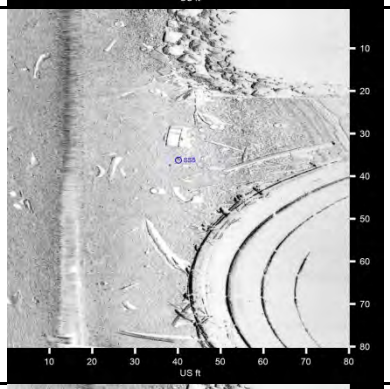
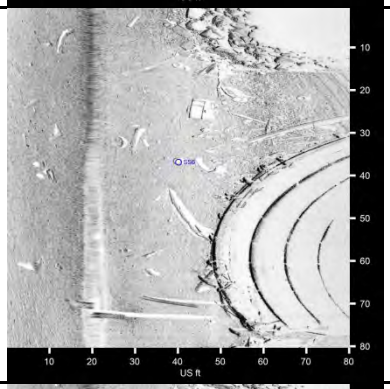
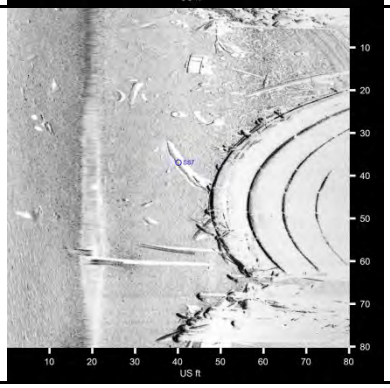
Notes:
1 - Coordinates are in feet and are referenced to New York State Plane East, Zone 3101.
2 - Measurements are in feet.

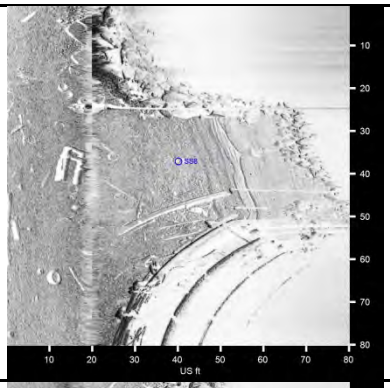
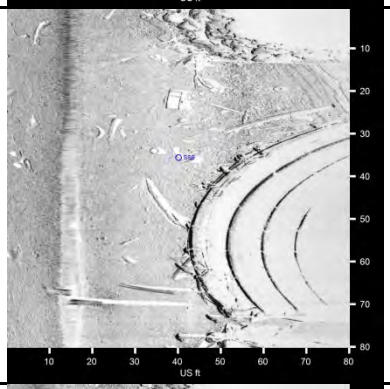
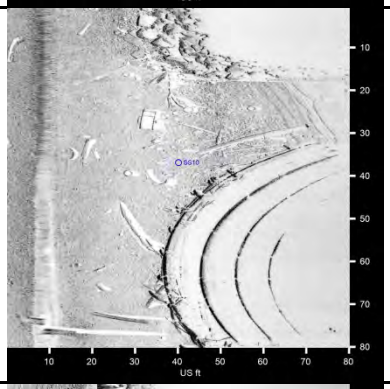
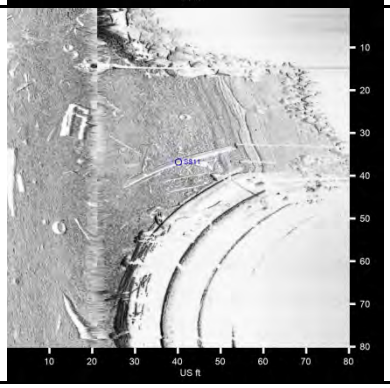
ATTACHMENT 3

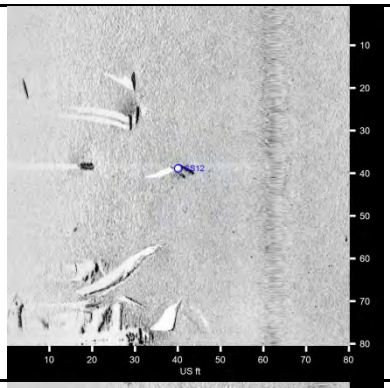
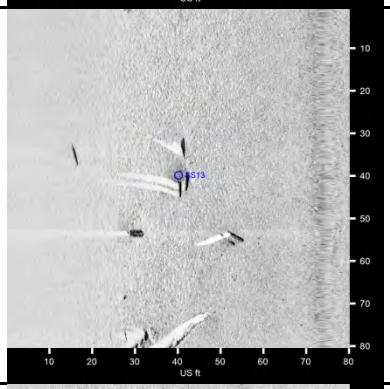
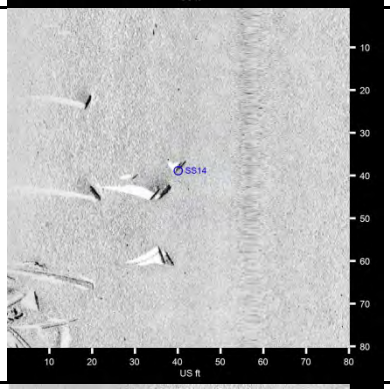
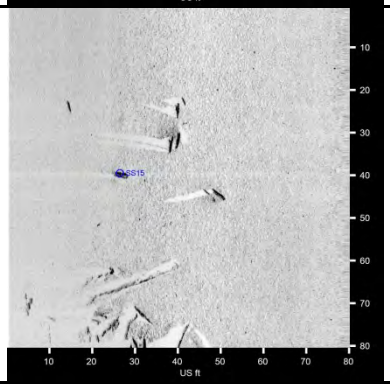
SIDE SCAN SONAR TARGET REPORT

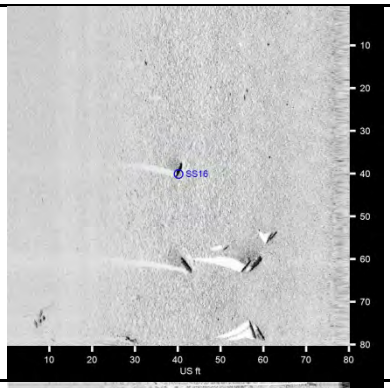
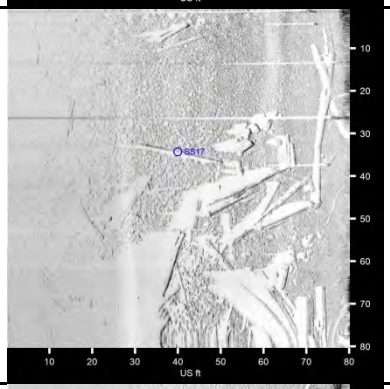
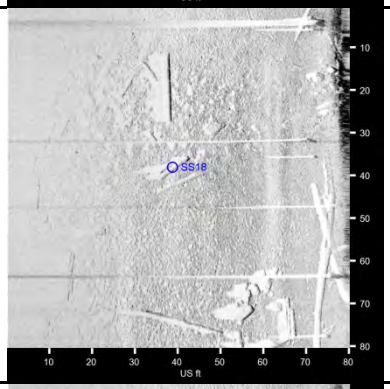
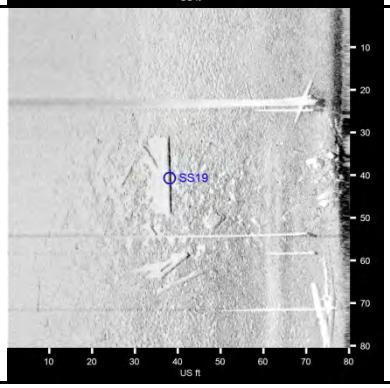
BKL025 & IMPACT Sites

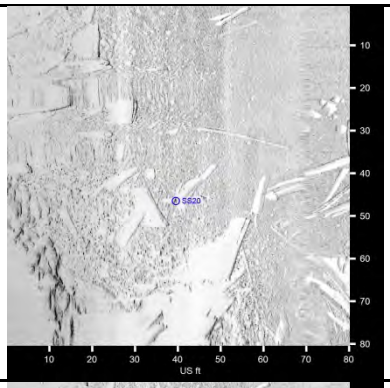
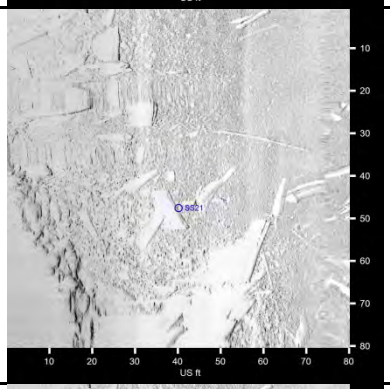
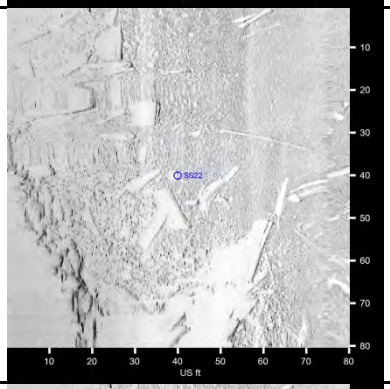
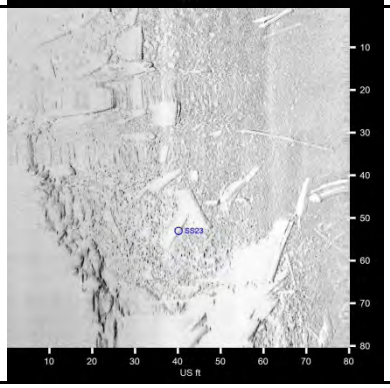
Target Image	Target Info	Dimensions and Attributes
	**SS1** Easting Northing 648251,895413	● Target Width: 1.7 US ft ● Target Height: 0.3 US ft ● Target Length: 1.7 US ft ● Description: Tires
	**SS2** Easting Northing 648229,895423	● Target Width: 1.2 US ft ● Target Height: 0.9 US ft ● Target Length: 5.7 US ft ● Description: Debris
	**SS3** Easting Northing 648255,895425	● Target Width: 0.3 US ft ● Target Height: 1.0 US ft ● Target Length: 7.8 US ft ● Description: Submerged tree and tires

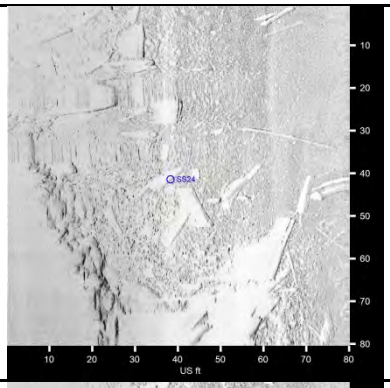
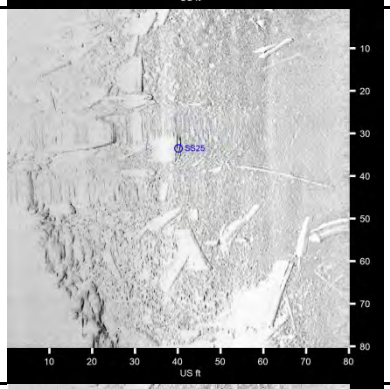
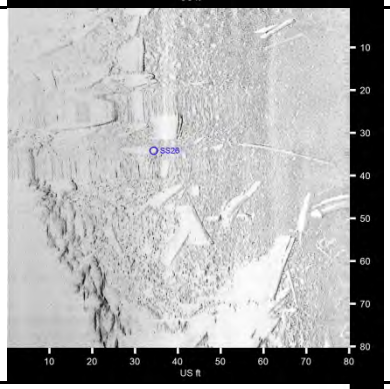
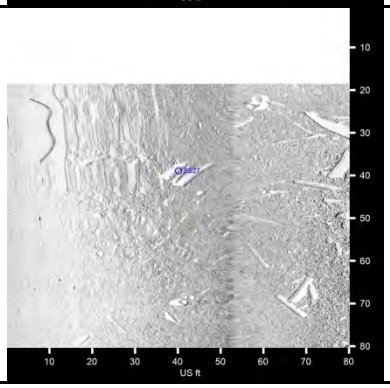
Target Image	Target Info	Dimensions and Attributes
	**SS4** Easting Northing 648246,895427	● Target Width: 3.2 US ft ● Target Height: 0.7 US ft ● Target Length: 4.7 US ft ● Description: Debris
	**SS5** Easting Northing 648240,895435	● Target Width: 0.9 US ft ● Target Height: 0.4 US ft ● Target Length: 1.3 US ft ● Description: Debris
	**SS6** Easting Northing 648225,895436	● Target Width: 2.2 US ft ● Target Height: 0.5 US ft ● Target Length: 1.6 US ft ● Description: Tire
	**SS7** Easting Northing 648210,895439	● Target Width: 0.9 US ft ● Target Height: 0.6 US ft ● Target Length: 14.3 US ft ● Description: Debris

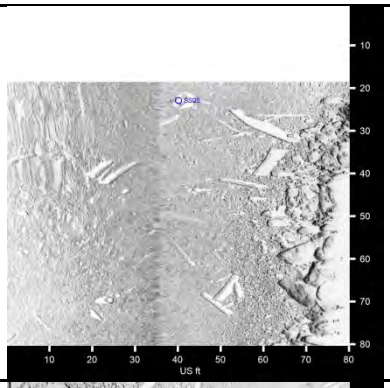
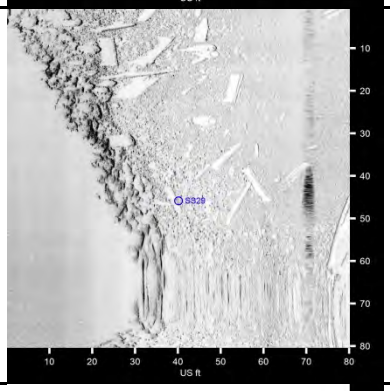
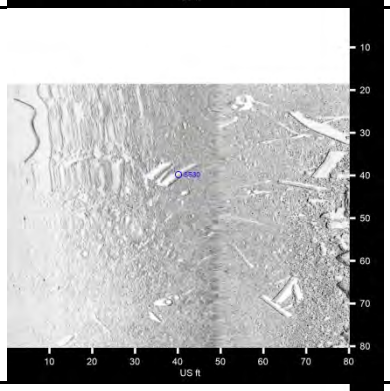
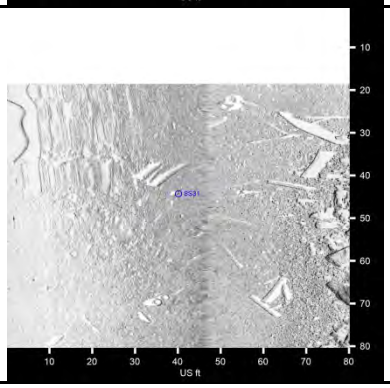
Target Image	Target Info	Dimensions and Attributes
	**SS8** Easting Northing 648265,895441	● Target Width: 1.8 US ft ● Target Height: 0.3 US ft ● Target Length: 1.6 US ft ● Description: Tire
	**SS9** Easting Northing 648225,895441	● Target Width: 0.6 US ft ● Target Height: 0.4 US ft ● Target Length: 4.4 US ft ● Description: Debris
	**SS10** Easting Northing 648232,895445	● Target Width: 0.3 US ft ● Target Height: 0.1 US ft ● Target Length: 4.4 US ft ● Description: Debris
	**SS11** Easting Northing 648254,895450	● Target Width: 1.9 US ft ● Target Height: 0.6 US ft ● Target Length: 29.1 US ft ● Description: Piling

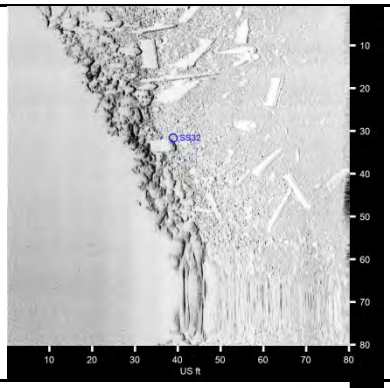
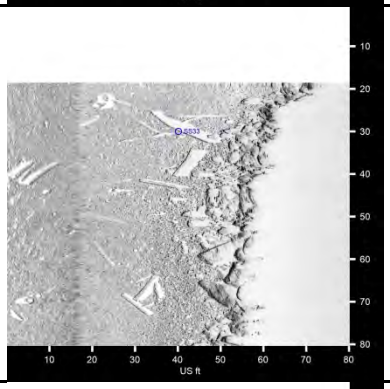
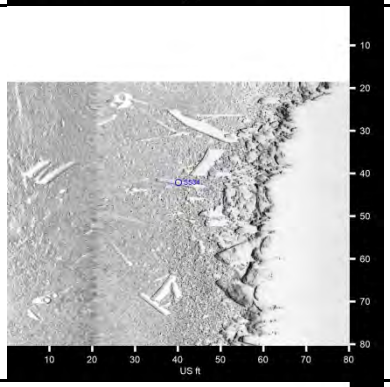
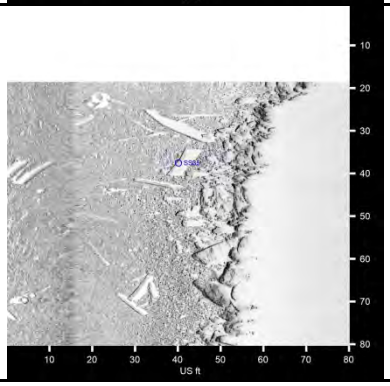
Target Image	Target Info	Dimensions and Attributes
	**SS12** Easting Northing 6480857,895557	● Target Width: 0.7 US ft ● Target Height: 2.3 US ft ● Target Length: 4.3 US ft ● Description: Piling
	**SS13** Easting Northing 6480777,8955697	● Target Width: 0.8 US ft ● Target Height: 2.3 US ft ● Target Length: 4.5 US ft ● Description: Piling
	**SS14** Easting Northing 6480707,8955707	● Target Width: 0.5 US ft ● Target Height: 1.0 US ft ● Target Length: 3.2 US ft ● Description: Piling
	**SS15** Easting Northing 6480897,8955787	● Target Width: 0.0 US ft ● Target Height: 1.9 US ft ● Target Length: 3.5 US ft ● Description: Piling

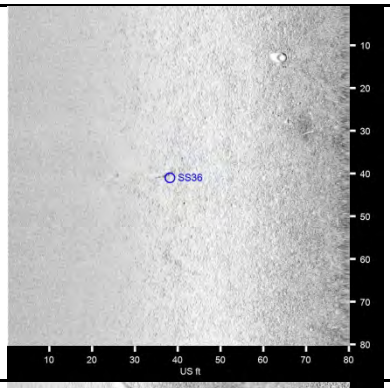
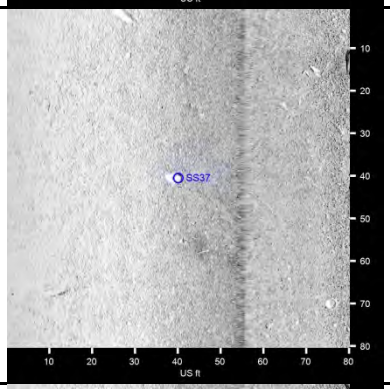
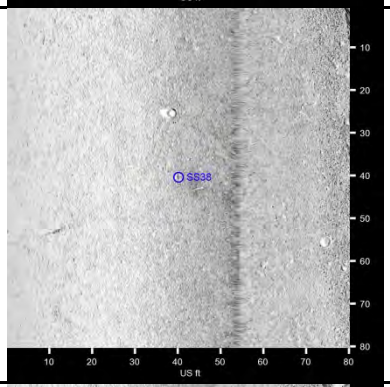
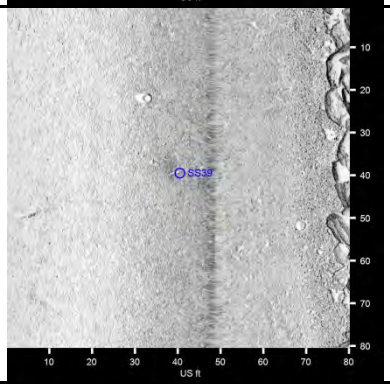
Target Image	Target Info	Dimensions and Attributes
	**SS16** Easting Northing 648078,895593	● Target Width: 0.7 US ft ● Target Height: 2.0 US ft ● Target Length: 3.8 US ft ● Description: Piling
	**SS17** Easting Northing 648199,895610	● Target Width: 0.7 US ft ● Target Height: 0.4 US ft ● Target Length: 19.7 US ft ● Description: Piling
	**SS18** Easting Northing 648162,895618	● Target Width: 1.0 US ft ● Target Height: 0.6 US ft ● Target Length: 8.6 US ft ● Description: Piling
	**SS19** Easting Northing 648144,895621	● Target Width: 0.8 US ft ● Target Height: 0.4 US ft ● Target Length: 18.5 US ft ● Description: Piling

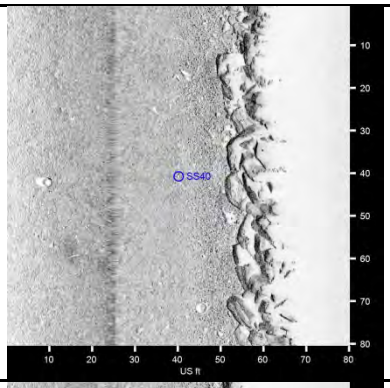
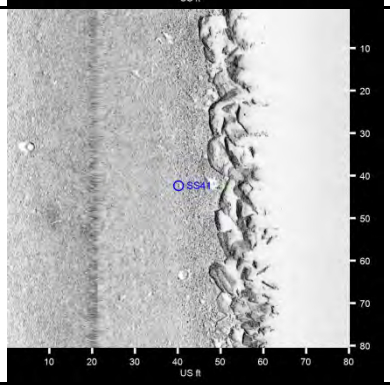
Target Image	Target Info	Dimensions and Attributes
	**SS20** Easting Northing 648209,895623	● Target Width: 1.0 US ft ● Target Height: 0.4 US ft ● Target Length: 1.6 US ft ● Description: Debris
	**SS21** Easting Northing 648212,895627	● Target Width: 0.8 US ft ● Target Height: 0.4 US ft ● Target Length: 10.3 US ft ● Description: Piling
	**SS22** Easting Northing 6482052,8956282	● Target Width: 0.5 US ft ● Target Height: 0.2 US ft ● Target Length: 2.7 US ft ● Description: Debris
	**SS23** Easting Northing 648217,895632	● Target Width: 0.9 US ft ● Target Height: 0.2 US ft ● Target Length: 9.6 US ft ● Description: Piling

Target Image	Target Info	Dimensions and Attributes
	**SS24** Easting Northing 648207,895635	● Target Width: 0.9 US ft ● Target Height: 0.3 US ft ● Target Length: 7.6 US ft ● Description: Piling
	**SS25** Easting Northing 648190,895636	● Target Width: 0.2 US ft ● Target Height: 0.4 US ft ● Target Length: 6.9 US ft ● Description: Piling
	**SS26** Easting Northing 648196,895641	● Target Width: 2.2 US ft ● Target Height: 0.5 US ft ● Target Length: 1.8 US ft ● Description: Tire
	**SS27** Easting Northing 648158,895641	● Target Width: 1.3 US ft ● Target Height: 0.7 US ft ● Target Length: 5.7 US ft ● Description: Piling

Target Image	Target Info	Dimensions and Attributes
	**SS28** Easting Northing 648180,895644	● Target Width: 2.8 US ft ● Target Height: 1.2 US ft ● Target Length: 4.6 US ft ● Description: Debris
	**SS29** Easting Northing 648213,895644	● Target Width: 0.7 US ft ● Target Height: 0.2 US ft ● Target Length: 6.8 US ft ● Description: Piling
	**SS30** Easting Northing 648160,895645	● Target Width: 1.3 US ft ● Target Height: 0.8 US ft ● Target Length: 9.0 US ft ● Description: Piling
	**SS31** Easting Northing 648159,895649	● Target Width: 0.8 US ft ● Target Height: 0.6 US ft ● Target Length: 1.5 US ft ● Description: Debris

Target Image	Target Info	Dimensions and Attributes
	**SS32** Easting Northing 648199,895658	● Target Width: 1.5 US ft ● Target Height: 0.4 US ft ● Target Length: 3.5 US ft ● Description: Debris
	**SS33** Easting Northing 648191,895660	● Target Width: 0.7 US ft ● Target Height: 0.7 US ft ● Target Length: 16.2 US ft ● Description: Piling
	**SS34** Easting Northing 648177,895667	● Target Width: 0.6 US ft ● Target Height: 0.7 US ft ● Target Length: 8.9 US ft ● Description: Piling
	**SS35** Easting Northing 648183,895669	● Target Width: 0.8 US ft ● Target Height: 0.6 US ft ● Target Length: 7.5 US ft ● Description: Piling

Target Image	Target Info	Dimensions and Attributes
	**SS36** Easting Northing 648038,895696	● Target Width: 0.9 US ft ● Target Height: 0.2 US ft ● Target Length: 4.0 US ft ● Description: Debris
	**SS37** Easting Northing 648074,895704	● Target Width: 2.2 US ft ● Target Height: 0.5 US ft ● Target Length: 2.4 US ft ● Description: Tire
	**SS38** Easting Northing 648062,895714	● Target Width: 0.6 US ft ● Target Height: 0.3 US ft ● Target Length: 1.7 US ft ● Description: Debris
	**SS39** Easting Northing 648063,895720	● Target Width: 0.7 US ft ● Target Height: 0.6 US ft ● Target Length: 2.0 US ft ● Description: Debris

Target Image	Target Info	Dimensions and Attributes
	**SS40** Easting Northing 648092,895729	● Target Width: 0.4 US ft ● Target Height: 0.1 US ft ● Target Length: 1.2 US ft ● Description: Debris
	**SS41** Easting Northing 648086,895738	● Target Width: 0.5 US ft ● Target Height: 0.1 US ft ● Target Length: 1.3 US ft ● Description: Debris

Notes:

1 - Coordinates are in feet and are referenced to New York State Plane East, Zone 3101.

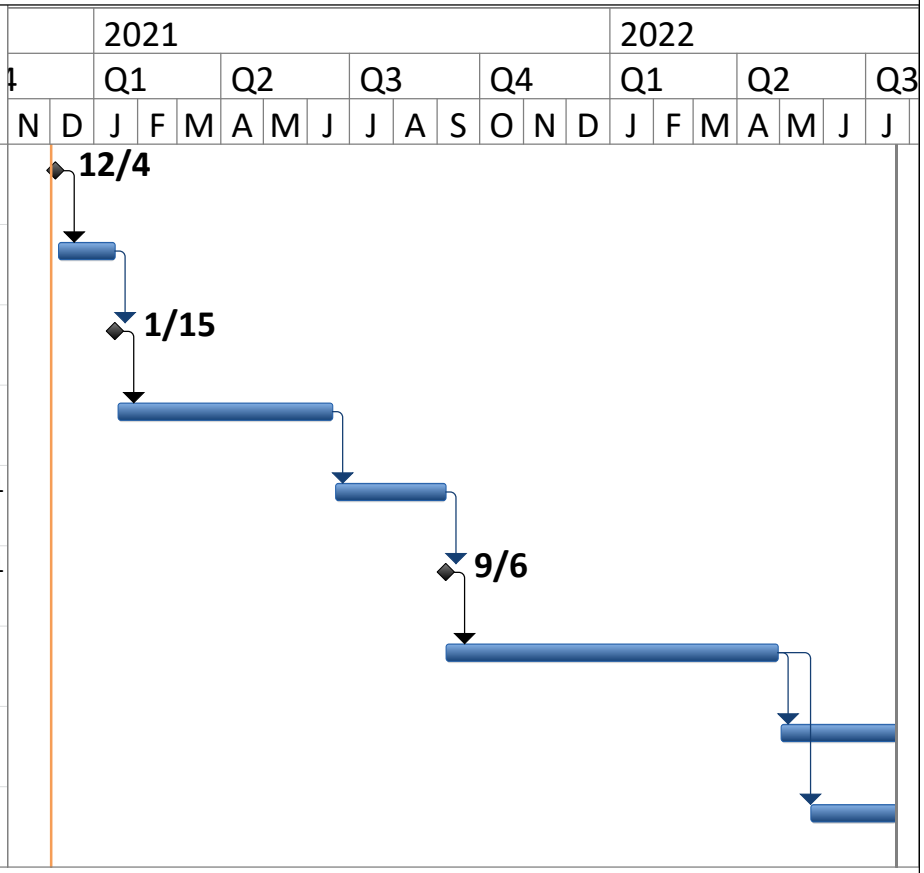
2 - Measurements are in feet.

ATTACHMENT 3

Preliminary Project Schedule

Con Edison Pemart former MGP
Peekskill, NY
OU-2 Estimated Project Schedule

ID	Task Name	Start	Finish
1	Submit Final OU-2 Remedial Design	Fri 12/4/20	Fri 12/4/20
2	NYSDEC RD Review	Mon 12/7/20	Fri 1/15/21
3	NYSDEC RD Approval	Fri 1/15/21	Fri 1/15/21
4	Remediation Contrctor Procurement Process	Mon 1/18/21	Fri 6/18/21
5	Pre-Construction Coordination	Mon 6/21/21	Mon 9/6/21
6	Construction Mobilization	Mon 9/6/21	Mon 9/6/21
7	Remedial Construction	Tue 9/7/21	Fri 4/29/22
8	Prepare FER and SMP	Mon 5/2/22	Fri 7/22/22
9	Environmental Easement	Mon 5/23/22	Fri 7/22/22



Project: Pemart OU-1 Constructio
Date: Wed 12/2/20

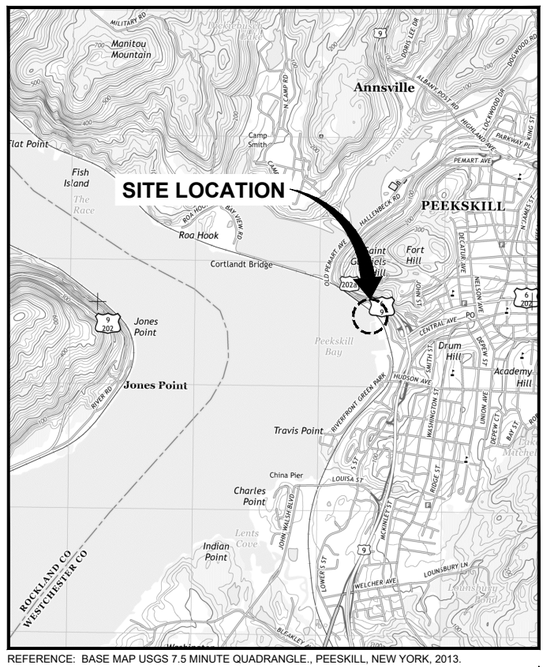
Task		External Milestone		Manual Summary Rollup	
Split		Inactive Task		Manual Summary	
Milestone		Inactive Milestone		Start-only	
Summary		Inactive Summary		Finish-only	
Project Summary		Manual Task		Deadline	
External Tasks		Duration-only		Progress	

APPENDIX A

OU-2 Design Drawings

DESIGN DRAWINGS

FORMER PEMART AVENUE WORKS
MGP SITE REMEDIAL DESIGN
- OPERATIONAL UNIT 2



REFERENCE: BASE MAP USGS 7.5 MINUTE QUADRANGLE., PEESKILL, NEW YORK, 2013.

LOCATION MAP

0 2000' 4000'

GRAPHIC SCALE

AREA LOCATION

NEW YORK

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
PEEKSKILL, NEW YORK
SITE NO. 360166

DATE ISSUED / DATE REVISED

DECEMBER 2020

ARCADIS Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

KEY CONTACTS:

OWNER:
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC.
31-01 20TH AVENUE, BUILDING 136, 2ND FLOOR
ASTORIA, NY 11105
TELEPHONE: 718.204.4145
CONTACT: MAURICE HANASHY

ENGINEER:
ARCADIS OF NEW YORK, INC.
ONE LINCOLN CENTER
110 W. FAYETTE ST., SUITE 300
SYRACUSE, NY 13202
TELEPHONE: 315.446.9120
CONTACT: JASON D. BRIEN

INDEX TO DRAWINGS

C:\Users\bdeclercq\BIM 360\Arcadis\ANA - CON ED\SON\Project Files\CONED PEMART REMEDIAL DESIGN SVCS\2020\30057146\01-DWG\OU2-RD_G001_COVER.dwg SAVED: 11/9/2020 12:35 PM BY: DECLERCQ, BRIAN
IMAGES:
J_BRIEN_NY.jpg
NY_Peekskill.tif

GENERAL NOTES:

1. LOCATIONS OF ALL PHYSICAL OBSTRUCTIONS AND DEBRIS ARE APPROXIMATE AND BASED UPON VISUAL OBSERVATIONS AND THE OCEAN SURVEYS INC. (OSI) 2014 MULTI-SENSOR MARINE GEOPHYSICAL SURVEY. ONLY KNOWN OBSTRUCTIONS ARE SHOWN. LOCATE AND REMOVE ALL OBSTRUCTIONS AS NECESSARY TO COMPLETE WORK.
2. THE LOCATIONS OF ALL STRUCTURES/FEATURES SHOWN ARE APPROXIMATE, REFLECT AVAILABLE INFORMATION, ARE PROVIDED FOR REFERENCE ONLY, AND ARE SUBJECT TO FIELD VERIFICATION BY THE CONTRACTOR. ADDITIONAL SITE FEATURES MAY BE PRESENT THAT ARE NOT SHOWN ON THE DRAWINGS.
3. ESTABLISH AND MAINTAIN SURVEY CONTROL DURING WORK EXECUTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
4. PROMPTLY NOTIFY THE OWNER UPON DISCOVERY, AND BEFORE CONDITIONS ARE FURTHER DISTURBED, OF PHYSICAL CONDITIONS AT THE SITE WHICH DIFFER MATERIALLY FROM THOSE INDICATED ON THE CONSTRUCTION DOCUMENTS AND CONTRACT DRAWINGS.
5. PROTECT STRUCTURES AND SITE FEATURES INCLUDING BUT NOT LIMITED TO, EXISTING STRUCTURES, ROADS, RAILROAD RIGHT OF WAY, AND OUTFALLS. MONITORING TO BE PERFORMED BY OTHERS.
6. COMPLY WITH ALL REQUIREMENTS OF SEPARATELY BOUND PROJECT IMPLEMENTATION PLANS AND PERMITS.
7. COMPLY WITH ALL REQUIREMENTS OF ANY ISSUED AGENCY APPROVALS AND ANY APPLICABLE STATE OR FEDERAL LAW OR REGULATION.
8. PROMPTLY, AFTER DISCOVERING, GIVE WRITTEN AND ORAL NOTICE TO THE OWNER OF DELAYS IN PROJECT SCHEDULE DUE TO EQUIPMENT MALFUNCTION, WEATHER, OR GENERAL FAILURE TO MEET PRODUCTION STANDARDS.
9. THE OWNER WILL OBTAIN ACCESS TO NON-OWNED PROPERTY WITHIN THE PROJECT WORK LIMITS.
10. PERFORM ALL WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND/OR ANY CHANGES THERETO AUTHORIZED BY THE OWNER.

REFERENCE AND SURVEY-RELATED NOTES:

1. BASE MAP DEVELOPED FROM CONTRACTORS' LINE & GRADE SOUTH, LLC, DRAWING TITLED "TOPOGRAPHIC SURVEY PREPARED FOR G.D.C. PROPERTY SITUATE IN THE CITY OF PEEKSKILL, COUNTY OF WESTCHESTER, STATE OF NEW YORK" DATED 08/31/04 AT A SCALE OF 1" = 20' AND CONTOUR INTERVAL OF 1' PROVIDED BY CONSOLIDATED EDISON OF NEW YORK, INC.
2. SURFACE TOPOGRAPHY OF PEEKSKILL LANDING PARK DEVELOPED FROM ELECTRONIC FILE (CONTECH PEEKSKILL AB (PEEKSKILL LANDING AS BUILT).DWG) DATED JANUARY 27, 2015.
3. BATHYMETRIC SURVEY COMPLETED BY OCEAN SURVEYS, INC. ON NOVEMBER 11, 2014. BATHYMETRIC SURVEY CONTOURS OBTAINED FROM OCEAN SURVEY'S MAP ENTITLED "MULTISENSOR MARINE GEOPHYSICAL SURVEY, SIDE SCAN SONAR MOSAIC & MAGNETOMETER RESULTS, SEDIMENT REMEDIATION PROJECT, PEEKSKILL BAY, PEEKSKILL, NEW YORK", DATED DECEMBER 2, 2014.
4. RIVER BANK TOPOGRAPHY ADJACENT TO PEEKSKILL LANDING DEVELOPED FROM TOPOGRAPHIC SURVEY CONDUCTED BY PAUL JAMES OLSZEWSKI, P.L.S, PLLC, MAY 21, 2019. ELECTRONIC FILE (PEEKSKILL32.08-05-07, 189 WATER STREET.DWG).
5. GRID SYSTEM FOR BATHYMETRY IS IN U.S. SURVEY FEET RELATIVE TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, EAST ZONE 3101, NAD83.
6. SAMPLING LOCATIONS SURVEYED BY ARCADIS ARE BASED ON NEW YORK STATE PLANE COORDINATE SYSTEM, EAST ZONE 3101, NAD83.
7. ALL TOPOGRAPHIC AND BATHYMETRIC ELEVATIONS ARE IN FEET AND ARE REFERENCED TO NAVD88 WITH ONE-FOOT CONTOUR INTERVALS.
8. TIDAL DATA WAS OBTAINED FROM NOAA TIDAL BENCH MARK AT GRASSY POINT, HAVERSTRAW BAY, HUDSON RIVER, NEW YORK; STATION 8518924 FOR TIDAL EPOCH: 1983 - 2001. LOCAL ELEVATION DIFFERENCES BETWEEN NOAA MLLW AND NAVD88 VERTICAL DATUMS WERE COMPUTED USING NOAA ONLINE VERTICAL DATUM TRANSFORMATION TOOL AT LAT/LON 41.2906/-79.931 (NAD83) FOR PEEKSKILL, NY (SEE DATUM TABLE INSET).
9. PARCEL BOUNDARY LINES PROVIDED BY JAMES W. SEWALL COMPANY AND APPROVED BY THE CITY OF PEEKSKILL ASSESSOR. PARCEL BOUNDARY LINES ARE APPROXIMATE.
10. PERFORM SURVEYS NECESSARY TO RECORD ACTUAL CONSTRUCTION, INCLUDING DEMOLITION, EXCAVATION, DREDGING, NAPL BARRIER WALL LOCATION AND ELEVATION, BACKFILLING AND RESTORATION OPERATIONS IN ACCORDANCE WITH SECTION 01 71 23 - FIELD ENGINEERING.

SITE MANAGEMENT/PROJECT PERFORMANCE NOTES:

1. PERFORM ALL WORK ACTIVITIES ON NON-HOLIDAY WEEKDAYS (MONDAY THROUGH FRIDAY) BETWEEN THE HOURS OF 7:00 AM AND 8:00 PM AND NON-HOLIDAY SATURDAYS BETWEEN 8:00 AM AND 5:00 PM PER CITY OF PEEKSKILL NOISE ORDINANCE EXCEPT IN CASES OF EMERGENCY OR UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM OWNER. NO WORK WILL BE PERFORMED OUTSIDE OF THESE HOURS WITHOUT PRIOR APPROVAL FROM THE OWNER AND THE CITY OF PEEKSKILL. NO HEAVY EQUIPMENT OPERATION WILL BE PERMITTED PRIOR TO 8:00 AM WEEKDAYS AND 9:00 AM SATURDAYS.
2. UTILIZE COMPETENT, EXPERIENCED PERSONNEL TO PERFORM ALL WORK IN A NEAT AND ORDERLY MANNER, IN CONFORMANCE WITH BEST MODERN TRADE PRACTICE, AND BY COMPETENT, EXPERIENCED PERSONNEL. MATERIALS AND INSTALLATION WILL BE IN ACCORDANCE WITH ALL CODES, REGULATIONS, AND REQUIREMENTS OF ALL APPLICABLE CITY, STATE, FEDERAL, AND OTHER PUBLIC OR PRIVATE AUTHORITIES.
3. DECONTAMINATE ALL EQUIPMENT OPERATED WITHIN THE PROJECT WORK LIMITS PRIOR TO ARRIVING AND LEAVING TO PROJECT WORK LIMITS IN ACCORDANCE WITH THE REMEDIAL DESIGN. DECONTAMINATE PROJECT EQUIPMENT THAT COMES IN CONTACT WITH DREDGED MATERIALS PRIOR TO HANDLING IMPORTED BACKFILL MATERIAL, AND PRIOR TO LEAVING THE PROJECT WORK LIMITS.
4. ESTABLISH, MAINTAIN, AND PROTECT THE PROJECT WORK LIMITS (INCLUDING EXCLUSION, CONTAMINATION REDUCTION, AND SUPPORT ZONES) IN ACCORDANCE WITH THE CONTRACTOR'S HASP. PERFORM ALL WORK WITHIN THE PROJECT WORK LIMITS UNLESS PRIOR APPROVAL IS OBTAINED FROM THE OWNER.
5. DO NOT STORE ANY EQUIPMENT, MATERIALS OR SUPPLIES ON PRIVATE OR PUBLIC PREMISES WITHOUT PRIOR APPROVAL FROM THE OWNER.
6. THE ENGINEER WILL PERFORM COMMUNITY AIR MONITORING ON A CONTINUOUS BASIS DURING THE REMEDIAL CONSTRUCTION ACTIVITIES. VERIFY THAT COMMUNITY AIR MONITORING IS BEING PERFORMED PRIOR TO INITIATING INTRUSIVE AND/OR POTENTIAL DUST GENERATING ACTIVITIES EACH DAY. CONDUCT REAL-TIME WORK ZONE AIR MONITORING ON A CONTINUOUS BASIS DURING ALL INTRUSIVE AND/OR POTENTIAL DUST GENERATING ACTIVITIES.
7. CONTROL ODORS, VAPORS, AND DUST GENERATED DURING THE WORK. CONTROL ODORS TO THE SATISFACTION OF THE OWNER, ENGINEER, AND NYSDEC AND SUCH THAT NO MGP ODORS ARE DETECTABLE AT THE SITE PERIMETER. CONTROL VAPORS AND DUST USING WATER SPRAY, BIOSOLVE, FOAMS, AND /OR AN ODOR NEUTRALIZING MISTING SYSTEM AS NECESSARY TO MEET THE 1) COMMUNITY AIR MONITORING ACTION LEVELS AND 2) WORK ZONE AIR MONITORING ACTION LEVELS SET FORTH IN THE CONTRACTOR'S HASP.
8. RESTORE ALL AREAS IMPACTED BY OR OTHERWISE DISTURBED DURING THE PROJECT TO PRE-CONSTRUCTION CONDITION AND/OR AS INDICATED IN THE REMEDIAL DESIGN IN A TIMELY MANNER AND PRIOR TO DEMOBILIZATION.
9. MEET ALL NOISE ORDINANCES AND MINIMIZE NOISE CAUSED BY CONSTRUCTION OPERATIONS. EQUIPMENT WITH SILENCERS OR MUFFLERS DESIGNED TO OPERATE WITH THE LEAST POSSIBLE NOISE IN COMPLIANCE WITH FEDERAL, STATE, AND LOCAL NOISE ORDINANCES.
10. PERFORM AND MAINTAIN SURVEY CONTROL THROUGHOUT THE COURSE OF THE WORK. EMPLOY A CERTIFIED NEW YORK STATE LICENSED PROFESSIONAL LAND SURVEYOR IF PERFORMING TOPOGRAPHIC SURVEY OR NATIONALLY CERTIFIED HYDROGRAPHER (IF PERFORMING A BATHYMETRIC SURVEY) TO PREPARE AND CERTIFY SURVEY/BATHYMETRY DOCUMENTATION OF PRE-CONSTRUCTION, POST-CONSTRUCTION, AND RESTORED CONDITIONS. SUBMIT SURVEY/BATHYMETRY DOCUMENTATION WITH RECORD DRAWINGS AT PROJECT COMPLETION.
11. INSTALL AND MAINTAIN ALL NECESSARY TEMPORARY EROSION, SEDIMENTATION AND TURBIDITY CONTROLS THROUGHOUT CONSTRUCTION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
12. SCHEDULE, COORDINATE, LOAD, AND TRANSPORT EXCAVATED/DREDGED MATERIAL OFF-SITE FOR TREATMENT/DISPOSAL AT APPROPRIATE CON EDISON-APPROVED TREATMENT/DISPOSAL FACILITIES.
13. COORDINATE WITH THE OWNER AND ENGINEER PRIOR TO REMOVING EXISTING SITE FEATURES (IF ANY) NOT SPECIFICALLY IDENTIFIED ON THE DESIGN DRAWINGS THAT REQUIRE REMOVAL TO FACILITATE CONSTRUCTION.
14. LEAVE THE PROJECT WORK LIMITS IN A CLEAN, NEAT, AND ORDERLY CONDITION UPON COMPLETION OF CONSTRUCTION.

SAFETY NOTES:

1. PROVIDE EVIDENCE OF ALL ONSITE PERSONNEL COMPLETING OSHA 40-HOUR TRAINING AND 8-HOUR REFRESHER TRAINING PRIOR TO INITIATING REMEDIAL CONSTRUCTION ACTIVITIES.
2. INITIATE, MAINTAIN, AND SUPERVISE ALL SAFETY MEASURES AND PROGRAMS IN CONNECTION WITH THE PROJECT. TAKE ALL NECESSARY PRECAUTIONS FOR THE SAFETY OF, AND PROVIDE THE NECESSARY PRECAUTIONS TO PROTECT, SITE WORKERS, CONSTRUCTION OVERSIGHT PERSONNEL, AND SITE VISITORS.
3. COMPLY WITH ALL APPLICABLE LAWS, ORDINANCES, RULES, REGULATIONS, AND ORDERS OF PUBLIC BODIES HAVING JURISDICTION FOR THE SAFETY OF PERSONS OR PROPERTY OR TO PROTECT THEM FROM DAMAGE, INJURY, OR LOSS, INCLUDING, WITHOUT LIMITATION, THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (PL 91-596) AND UNDER SECTION 107 OF THE CONTRACT WORK HOURS AND SAFETY STANDARDS ACT (PL 91-54) AND AMENDMENTS THERETO. COMPLY WITH THE REQUIREMENTS SET FORTH UNDER 29 CFR 1910 AND 29 CFR 1926. ERECT AND MAINTAIN, AS REQUIRED BY THE CONDITIONS AND THE PROGRESS OF THE WORK, ALL NECESSARY SAFEGUARDS FOR THE SAFETY AND PROTECTION OF PERSONS AND PROPERTY AND COMPLY WITH ALL APPLICABLE RECOMMENDATIONS OF THE MANUAL IN CONSTRUCTION OF THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
4. FURNISH AND PLACE ALL SITE SAFETY SIGNAGE, OR OTHER SAFETY FEATURES REQUIRED.
5. THE MATERIALS SUBJECT TO HANDLING AS PART OF THE PROJECT MAY CONTAIN HAZARDOUS CONSTITUENTS OR CHEMICALS AND SHOULD BE HANDLED IN ACCORDANCE WITH APPLICABLE REGULATIONS. DEVELOP AND IMPLEMENT APPROPRIATE HEALTH AND SAFETY MEASURES FOR ITS EMPLOYEES, SUBCONTRACTORS, AND SITE VISITORS, AND FOR THE PROTECTION OF THE ENVIRONMENT AND SURROUNDING COMMUNITY. DEVELOP THE CONTRACTOR'S HEALTH AND SAFETY PLAN IN ACCORDANCE WITH APPLICABLE OSHA, FEDERAL, STATE, AND LOCAL REGULATIONS.
6. PROVIDE A LIST OF ALL CHEMICAL PRODUCTS AND AN SDS FOR ALL CHEMICAL PRODUCTS TO BE USED ON-SITE. THE LIST MUST BE APPROVED BY THE OWNER PRIOR TO BEING BROUGHT ON-SITE.
7. PERSONNEL MUST WEAR U.S. COAST GUARD-APPROVED (TYPE I OR II) PFD (E.G., LIFE JACKET) WHEN: WORKING OR TRAVELING IN OR ON FLOATING EQUIPMENT (E.G., BOATS, BARGES, RAFTS, OR OTHER WATERCRAFT); WORKING IN CLOSE PROXIMITY TO FAST-FLOWING WATER OR WATER DEEPER THAN 4 FEET; WORKING ON ICE NEAR OPEN WATER. ADDITIONALLY, USE OF LIFELINES MAY BE REQUIRED.
8. PERSONNEL WORKING FROM A BOAT OR BARGE WHEN WATER AND AIR TEMPERATURES ARE BELOW 60 DEGREES FAHRENHEIT MUST WEAR THERMAL PROTECTIVE (I.E., USCG ANTI-EXPOSURE) CLOTHING (E.G., WET SUITS, DRY SUITS) TO PROTECT PROJECT PERSONNEL FROM HYPOTHERMIC EFFECTS OF IMMERSION IN WATER.
9. PREPARE A SITE-SPECIFIC HASP TO BE REVIEWED BY THE ENGINEER AND THE OWNER PRIOR TO THE START OF ANY WORK.
10. THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR ALL SAFETY PROGRAMS FOR THEIR EMPLOYEE, SUBCONTRACTORS, AND ANY OTHER PERSONS WHO MAY BE AFFECTED THEREBY. THIS INCLUDED THE PREPARATION OF A SITE SPECIFIC HEALTH AND SAFETY PLAN (HASP) PRIOR TO ANY WORK AT THE SITE.

DREDGING:

1. FURNISH ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, ACCESSORIES, AND APPURTENANCES NECESSARY TO COMPLETE SEDIMENT DREDGING AND ALL RELATED WORK ASSOCIATED WITH AND INCIDENTAL TO DREDGING AS SHOWN ON THE DRAWINGS.
2. PROVIDE A MINIMUM OF 12 HOURS NOTICE IF/WHEN CHANGING BUCKET; OWNER MUST NOTIFY NYSDEC PRIOR TO USING CONVENTIONAL BUCKET.
3. MANAGE MATERIAL THAT SLOUGHS INTO THE DREDGE AREA WITH DREDGED SEDIMENTS AND RESTORE THE SLOGHED AREA(S) TO PRE-CONSTRUCTION GRADE.
4. THE CONTRACTOR IS RESPONSIBLE FOR CHARACTERIZING WASTE MATERIALS FOR DISPOSAL PURPOSES.

CONSTRUCTION WATER MANAGEMENT:

1. FOLLOWING A MINIMUM 24 HOUR PERIOD OF NO DISTURBANCE, DECANT WATER FROM GRAVITY SEDIMENT DEWATERING THAT ACCUMULATES WITHIN BARGES BACK INTO THE ACTIVE WORK AREA (I.E., WITHIN THE BSFB LIMITS) PROVIDED:
   - NO FREE PRODUCT IS OBSERVED ON THE WATER SURFACE
   - NO SHEEN IS OBSERVED ON THE WATER SURFACE
   - THE ACCUMULATED WATER HAS TURBIDY READING OF LESS THAN 250 NEPHELOMETRIC TURBIDITY UNITS (NTUs).
2. ALTERNATIVELY, THE CONTRACTOR MAY ELECT TO FORGO SETTLING AND/OR TREATMENT AND TRANSPORT WATER AND DREDGED SEDIMENT TO THE SEDIMENT PROCESSING FACILITY FOR OFF-SITE TREATMENT/DISPOSAL.
3. WATER DISCHARGE REQUIREMENTS SUBJECT TO CHANGE BASED UPON PERMIT TERMS AND REQUIREMENTS.

UTILITY NOTES:

1. THE LOCATIONS AND ALIGNMENTS OF UTILITIES SHOWN ON THE DESIGN DRAWINGS ARE APPROXIMATE AND BASED ON INFORMATION READILY AVAILABLE TO THE OWNER AND ENGINEER. VERIFY THE PRESENCE AND LOCATION OF ALL SITE FEATURES AND UTILITIES RELEVANT TO AND POTENTIALLY TO BE ENCOUNTERED DURING THE WORK. ADDITIONAL SITE FEATURES AND UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE DESIGN DRAWINGS.
2. CONTRACT/COORDINATE WITH DIG SAFELY NEW YORK TO LOCATE AND IDENTIFY UNDERGROUND UTILITIES. THE DIG SAFELY NEW YORK PHONE NUMBER IS 811; THE WEBSITE IS WWW.DIGSAFELYNEWYORK.COM.
3. SUBCONTRACT/COORDINATE WITH AN APPROPRIATE PRIVATE UTILITY LOCATOR TO LOCATE AND IDENTIFY UNDERGROUND UTILITIES WITHIN UPLAND AND UNDERWATER PORTIONS OF PROJECT WORK LIMITS WHERE INTRUSIVE ACTIVITIES WILL BE CONDUCTED.
4. MAINTAIN AND PROTECT ALL OVERHEAD/UNDERGROUND SITE FEATURES AND UTILITIES THAT MAY BE AFFECTED BY THE WORK.
5. CONTACT/COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES FOR THE TEMPORARY BRACING, REMOVAL, RELOCATION, AND/OR REPLACEMENT OF ANY UTILITIES, UTILITY POLES, OR GUY WIRES THAT MAY INTERFERE WITH WORK.
6. BEAR ALL COSTS AND RESPONSIBILITY FOR REPAIRS TO ANY ON-SITE AND/OR OFF-SITE FEATURES (UTILITIES, SIDEWALKS, ROADS, ETC.) AND/OR SURFACES DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES. ALL REPAIRS/REPLACEMENTS WILL MEET OR EXCEED EXISTING CONDITIONS.

ACRONYMS AND ABBREVIATIONS:

AMSL	ABOVE MEAN SEA LEVEL
APPROX	APPROXIMATE
EL	ELEVATION
HASP	HEALTH AND SAFETY PLAN
H:V	HORIZONTAL:VERTICAL
MAX	MAXIMUM
MHHW	MEAN HIGH HIGH WATER
MHW	MEAN HIGH WATER
MIN	MINIMUM
MLW	MEAN LOW WATER
MLLW	MEAN LOW LOW WATER
MSL	MEAN SEA LEVEL
NAD83	NORTH AMERICAN DATUM, 1983
NAVD88	NORTH AMERICAN VERTICAL DATUM, 1988
NGVD29	NATIONAL GEODETIC VERTICAL DATUM, 1929
NOAA	NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
O.C.	ON CENTER
SF	SQUARE FEET
TEMP	TEMPORARY
TYP.	TYPICAL

TABLE G-002-A DATUMS

DESCRIPTION	NGVD29	NAVD88	NOAA MLLW
NGVD29	0.00	-0.98	0.56
NAVD88	0.98	0.00	1.54
MHHW	2.93	1.95	3.49
MHW	2.65	1.67	3.21
MSL	1.14	0.15	1.70
MLW	-0.39	-1.37	0.17
NOAA MLLW	-0.56	-1.54	0.00

NOTES:

1. GIVEN AN ELEVATION RELATIVE TO A DATUM PRESENTED IN THE LEFT HAND COLUMN, PERFORM THE MATHEMATICAL OPERATION TO OBTAIN THE ELEVATION RELATIVE TO A DATUM SHOWN ACROSS THE TOP OF THE COLUMNS.
2. VALUES ARE IN US FEET.

LEGEND:

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: **JASON D. BRIEN**
Professional Engineer's No.: 084067

State	Date Signed	Project Mgr.
NY	12/3/2020	JDB
Designed by: JDB	Drawn by: LJP	Checked by: TLH

STATE OF NEW YORK · JASON DAVID BRIEN · 084067 · LICENSED PROFESSIONAL ENGINEER

ARCADIS Design & Consultancy for natural and built assets
ARCADIS OF NEW YORK, INC.

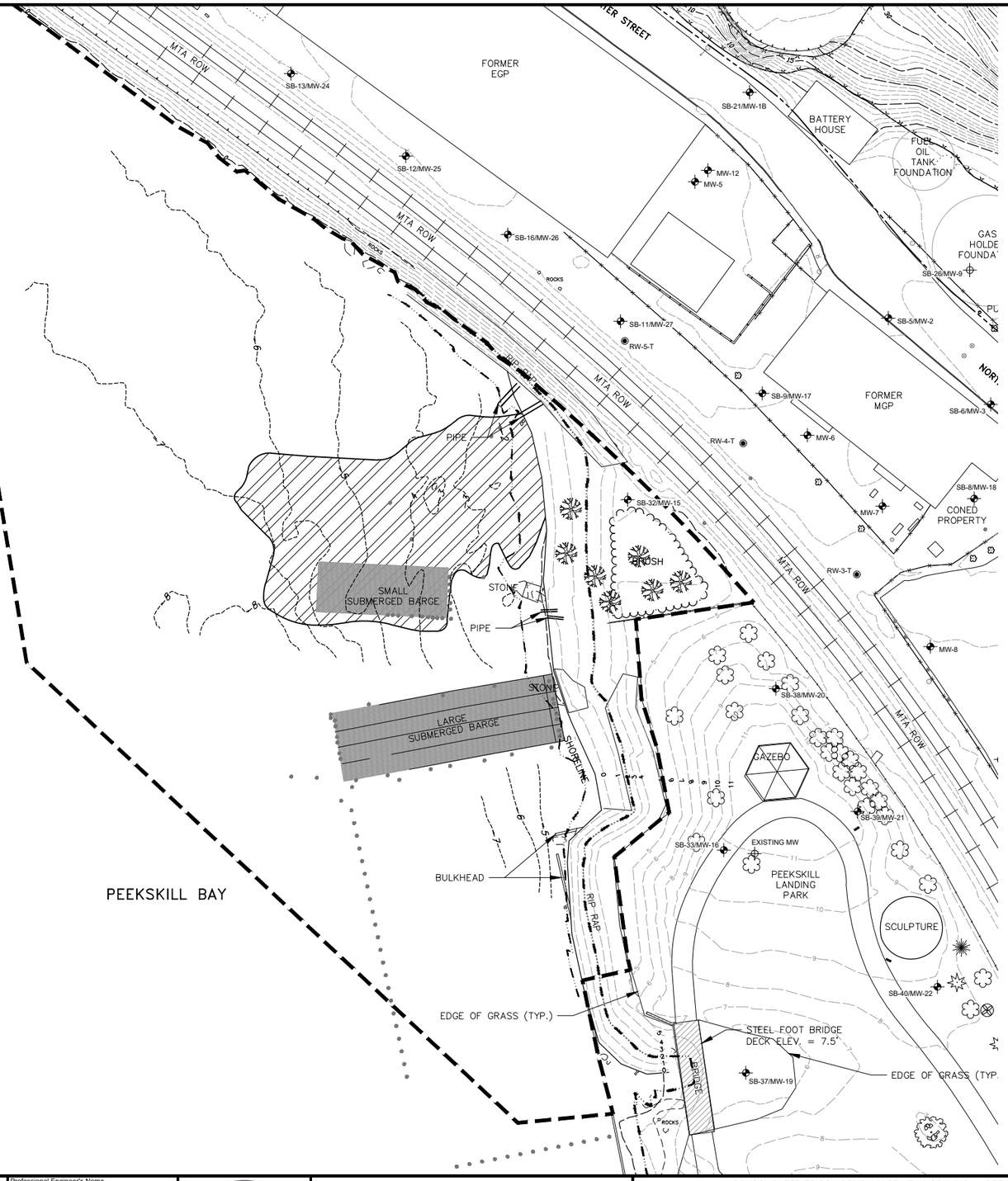
CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. ● PEEKSKILL, NEW YORK
FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

GENERAL REQUIREMENTS, NOTES, AND ABBREVIATIONS

ARCADIS Project No. 30057146.38
Date DECEMBER 2020

ARCADIS
ONE LINCOLN CENTER
110 W. FAYETTE ST., SUITE 300
SYRACUSE, NY 13202
TEL. 315.442.9120

G-002



LEGEND:

- PROPERTY LINE
- MHHW (EL. 1.95' NAVD88)
- MLLW (EL. –1.54' NAVD88)
- EXISTING FENCE
- METRO NORTH RAILROAD
- EXISTING TREES
- EXISTING STRUCTURE
- PROJECT WORK LIMITS
- EXISTING WOODEN PILES
- MW-8 MONITORING WELL
- SB-26/MW-9 MONITORING WELL (ROCK)
- RW-4-T RECOVERY WELL
- 11 TOPOGRAPHIC CONTOURS (NAVD88)
- 8 BATHYMETRIC CONTOURS
- SUBMERGED BARGE
- DREDGE AREA DEBRIS FIELD (SEE NOTE 3)

NOTES:

1. ANTICIPATED DEBRIS TO BE ENCOUNTERED DURING SEDIMENT DREDGING INCLUDES, BUT IS NOT LIMITED TO SUNKEN WOOD AND METAL BARGES, WOODEN PILES, TIRES, CONCRETE, ETC. LOCATION OF DEBRIS FEATURES ARE APPROXIMATE BASED ON THE CONDITIONS OBSERVED DURING THE MULTI–SENSOR MARINE GEOPHYSICAL SURVEY PERFORMED ON OCEAN SURVEYS, INC. ON NOVEMBER 11, 2014.
2. ADDITIONAL DEBRIS TARGETS AND MAGNETIC ANOMALIES LOCATIONS ARE IDENTIFIED IN THE OCEAN SURVEY'S DECEMBER 2014 OPERATIONS REPORT (OSI REPORT NO. 14ES055) MULTI–SENSOR MARINE GEOPHYSICAL SURVEY PEEKSKILL BAY, NEW YORK.
3. DREDGE AREA DEBRIS FIELD REFERS TO GENERAL AREA WHERE INTERFERENCE PREVENTED MAGNETOMETER FROM DISTINGUISHING INDIVIDUAL DEBRIS TARGETS. ADDITIONAL DEBRIS INCLUDING, BUT NOT LIMITED TO WOODEN PILES, TIRES, CONCRETE ARE PRESENT THROUGHOUT THE SEDIMENT DREDGE AREA, BUT NOT SHOWN ON THIS DRAWING.
4. MLLW CONTOUR IS ESTIMATED BASED ON LIMITED BATHYMETRY DATA IN THE NEAR SHORE AREA.

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XREFS:
OU2-RD_XBASE1
OU2-RD_XBASE3
OU2-RD_XTITLE

1"=30' (30' 0 30' 60')

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: JASON D. BRIEN		
Professional Engineer's No.: 084067		
State: NY	Date Signed: 12/3/2020	Project Mgr.: JDB
Designed by: JDB	Drawn by: LJP	Checked by: TLH

STATE OF NEW YORK · JASON DAVID BRIEN · 084067 · LICENSED PROFESSIONAL ENGINEER

ARCADIS | Design & Consultancy for natural and built assets

ARCADIS OF NEW YORK, INC.

CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. • PEEKSKILL, NEW YORK

FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

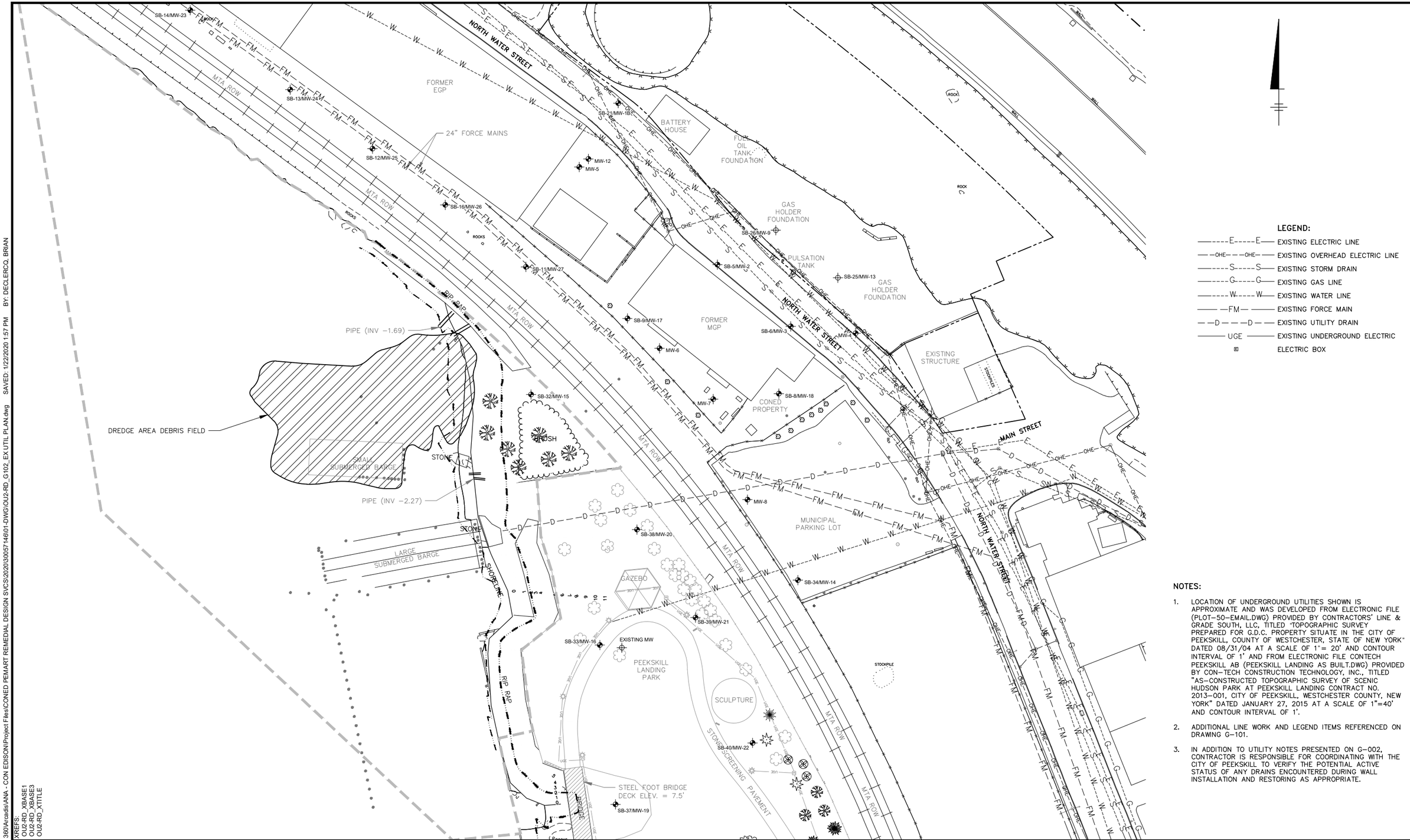
EXISTING SITE FEATURES PLAN

ARCADIS Project No.: 30057146.38

Date: DECEMBER 2020

ARCADIS
ONE LINCOLN CENTER
110 W. FAYETTE ST., SUITE 300
SYRACUSE, NY 13202
TEL. 315.442.9120

G-101



NOTES:

1. LOCATION OF UNDERGROUND UTILITIES SHOWN IS APPROXIMATE AND WAS DEVELOPED FROM ELECTRONIC FILE (PLOT-50-EMAIL.DWG) PROVIDED BY CONTRACTORS' LINE & GRADE SOUTH, LLC, TITLED "TOPOGRAPHIC SURVEY PREPARED FOR G.D.C. PROPERTY SITUATE IN THE CITY OF PEEKSKILL, COUNTY OF WESTCHESTER, STATE OF NEW YORK" DATED 08/31/04 AT A SCALE OF 1"= 20' AND CONTOUR INTERVAL OF 1' AND FROM ELECTRONIC FILE CONTECH PEEKSKILL AB (PEEKSKILL LANDING AS BUILT.DWG) PROVIDED BY CON-TECH CONSTRUCTION TECHNOLOGY, INC., TITLED "AS-CONSTRUCTED TOPOGRAPHIC SURVEY OF SCENIC HUDSON PARK AT PEEKSKILL LANDING CONTRACT NO. 2013-001, CITY OF PEEKSKILL, WESTCHESTER COUNTY, NEW YORK" DATED JANUARY 27, 2015 AT A SCALE OF 1"=40' AND CONTOUR INTERVAL OF 1'.
2. ADDITIONAL LINE WORK AND LEGEND ITEMS REFERENCED ON DRAWING G-101.
3. IN ADDITION TO UTILITY NOTES PRESENTED ON G-002, CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE CITY OF PEEKSKILL TO VERIFY THE POTENTIAL ACTIVE STATUS OF ANY DRAINS ENCOUNTERED DURING WALL INSTALLATION AND RESTORING AS APPROPRIATE.

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OU2-RD_XBASE3
OU2-RD_XTITLE

30' 0 30' 60'
1"=30'

THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING: USE TO VERIFY FIGURE REPRODUCTION SCALE

No.	Date	Revisions	By	Ckd

Professional Engineer's Name: **JASON D. BRIEN**
Professional Engineer's No.: 084067

State	Date Signed	Project Mgr.
NY	12/3/2020	JDB
Designed by	Drawn by	Checked by
JDB	LJP	TLH

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FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

EXISTING UTILITIES PLAN

ARCADIS Project No.: 30057146.38
Date: DECEMBER 2020

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G-102

LEGEND:

- SEDIMENT AND EROSION CONTROL
- TEMPORARY SECURITY FENCE
- BOTTOM-SEALED FILTER BARRIER
- POTENTIAL AREA FOR CONTRACTOR USE

NOTES:

1. ACCESS TO OU-2 WILL BE FROM THE HUDSON RIVER. DETERMINE AND MAINTAIN ACCESS TO THE LOCATION(S) FOR MOBILIZING EQUIPMENT AND PERSONNEL TO THE SITE. OBTAIN ALL NECESSARY APPROVALS AND PERMITS FOR SUCH ACCESS. ASSUME THAT ACCESS WILL NOT BE PERMITTED THROUGH PEEKSKILL LANDING PARK.
2. ESTABLISH, MAINTAIN, AND PROTECT THE PROJECT LIMITS, INCLUDING SUPPORT ZONES, EXCLUSION ZONES, AND CONTAMINATION REDUCTION ZONES FOR EACH PHASE OF WORK AS PART OF THIS CONTRACT. DELINEATE LANDWARD SITE WORK BOUNDARY WITH CAUTION TAPE, SAFETY FENCING, TRAFFIC CONES, BARRICADES, SIGNS, OR OTHER MEANS AS NECESSARY TO EFFECTIVELY IDENTIFY THE BOUNDARIES. MODIFY THE SIZE AND BOUNDARY OF THE EXCLUSION ZONE DAILY (OR MORE FREQUENTLY AS NEEDED) TO DELINEATE THE AREA AS REQUIRED TO SAFELY ACCOMPLISH THE DAY'S PLANNED ACTIVITIES.
3. PROTECT AND MAINTAIN ABOVE- AND UNDERGROUND UTILITIES DURING CONSTRUCTION. LOCATIONS OF KNOWN UTILITIES ARE APPROXIMATE. COORDINATE WITH THE APPROPRIATE UTILITY COMPANIES FOR THE TEMPORARY REMOVAL, RELOCATION, AND REPLACEMENT OF ANY UTILITY POLES, GUY WIRES, UNDERGROUND UTILITIES, AND/OR OVERHEAD WIRES THAT FALL WITHIN OR ADJACENT TO THE LIMITS OF CONSTRUCTION, OR THAT MAY INTERFERE WITH THE WORK.
4. INSTALL AND MAINTAIN TEMPORARY SEDIMENT AND EROSION CONTROLS THROUGHOUT CONSTRUCTION AND RESTORATION ACTIVITIES UPGRADIENT FROM THE WORK AREA ADJACENT TO PEEKSKILL LANDING AS INDICATED ON THE DRAWING.
5. INSTALL AND MAINTAIN BOTTOM-SEALED FILTER BARRIER (BSFB) AROUND AND OUTSIDE OF THE OU-2 ACTIVE WORK AREA FOR TURBIDITY CONTROL, PRIOR TO AND THROUGHOUT ANY REMEDIAL CONSTRUCTION ACTIVITIES THAT COULD GENERATE TRUBIDITY. INSTALL AND MAINTAIN SORBENT BOOMS LASHED TO THE AQUATIC FILTER BARRIER.
6. CONDUCT VISUAL OBSTRUCTION SURVEY TO DETERMINE FINAL BSFB LOCATION. CONTRACTOR IS RESPONSIBLE FOR ENSURING BSFB SEAL ON RIVER BOTTOM.
7. SEAL NORTH AND SOUTH SHORE BSFB TO RIP RAP SHORELINE TO MINIMIZE UNDERFLOW.
8. DO NOT DISTURB NORTHERN RIP RAP RIVER BANK TO OBTAIN BSFB SEAL.
9. INSTALL ICE DEFLECTION BARRIERS WEST OF PILE SUPPORTS (AS NECESSARY) TO PROTECT BSFB.
10. THE ENGINEER WILL CONDUCT TURBIDITY MONITORING UPSTREAM AND DOWNSTREAM OF DREDGING ACTIVITIES IN ACCORDANCE WITH THE SPECIFICATIONS AND PERMIT CONDITIONS.
11. PROVIDE SUFFICIENT CONTROLS TO PREVENT UNAUTHORIZED ACCESS TO THE SITE. TEMPORARY SECURITY FENCING LOCATION IS APPROXIMATE.
12. CONDUCT IN-RIVER INTRUSIVE ACTIVITIES IN ACCORDANCE WITH THE USACE NWP-38 AND NYSDEC 401 WQC PERMIT. SHEET PILE DRIVING, BSFB INSTALLATION, OR OTHER INTRUSIVE ACTIVITIES WILL NOT BE PERMITTED IN THE RIVER OUTSIDE THIS TIME FRAME. CONDUCT ALL INTRUSIVE ACTIVITIES WITHIN PERMIT TIME LIMITS.
13. ESTABLISH AND MAINTAIN SURVEY CONTROL DURING THE PERFORMANCE OF WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
14. PRIOR TO CONSTRUCTION, CONDUCT A GENERAL CLEANUP OF THE SITE TO FACILITATE THE WORK INCLUDING ALL ABOVE-GROUND DEBRIS, BRUSH, LOGS, TREES, STUMPS, FLOATING DEBRIS, DEBRIS WASHED ASHORE, REFUSE, AND OTHER ITEMS FROM WITHIN THE CONSTRUCTION WORK LIMITS AND PROPERLY DISPOSE OF ALL DEBRIS OFF-SITE. CLEAR AND GRUB TREES AND VEGETATION FROM TRIANGLE PARCEL (AS NEEDED).
15. IMPLEMENT APPROPRIATE CONTROL MEASURES TO MINIMIZE FUGITIVE DUST, VOLATILE EMISSIONS, AND ODORS THAT RESULTS FROM REMEDIAL ACTIVITIES.
16. ADDITIONAL LINE WORK AND LEGEND ITEMS REFERENCED ON DRAWING G-101.

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OU2-RD_XBASE3
OU2-RD_XTITLE

30' 0 30' 60'
1"=30'

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Professional Engineer's Name	JASON D. BRIEN	
Professional Engineer's No.	084067	
State	Date Signed	Project Mgr.
NY	12/3/2020	JDB
Designed by	Drawn by	Checked by
JDB	LJP	TLH

STATE OF NEW YORK JASON DAVID BRIEN 084067 LICENSED PROFESSIONAL ENGINEER

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FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

SITE PREPARATION AND ACCESS PLAN

ARCADIS Project No.	30057146.38
Date	DECEMBER 2020

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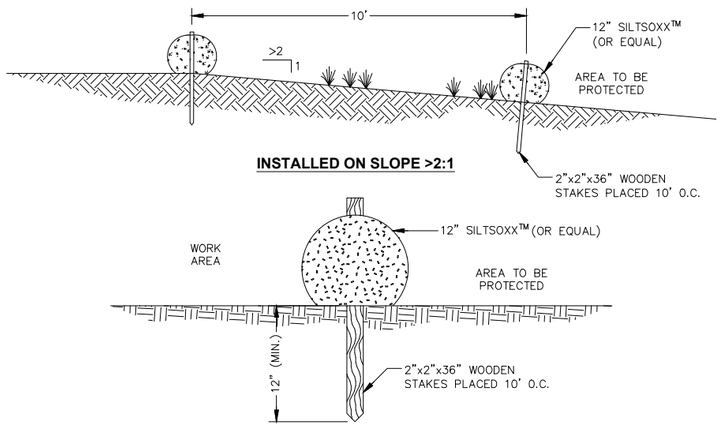
G-103

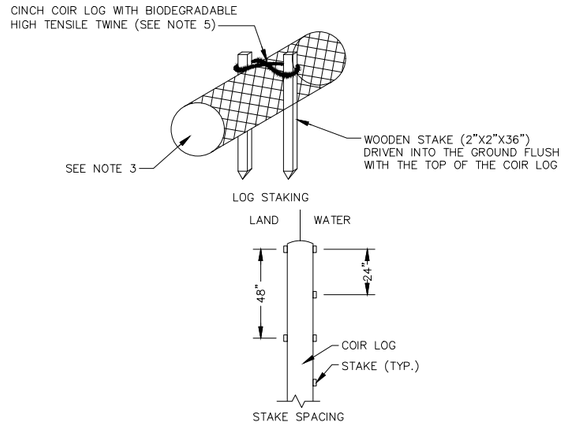


NOTES:

1. RECM WILL ONLY BE USED AS REQUIRED.
2. PLACE RECM TIGHTLY TOGETHER, END TO END, TO FORM A CONTINUOUS BARRIER IN SELECTED AREAS.
3. MAINTAIN THE INTEGRITY OF THE RECM FOR THE PROJECT DURATION AND UNTIL ADEQUATE VEGETATIVE GROWTH IS ESTABLISHED.
4. STOCKPILE ANY EXCAVATED MATERIAL ONSITE FOR USE AS BACKFILL UPON COMPLETION.
5. INSTALL SECOND RECM BARRIER AT TOP OF SLOPE IF SLOPE IS GREATER THAN 2:1.

ROLLED EROSION CONTROL MATERIAL DETAILS 1

NOT TO SCALE

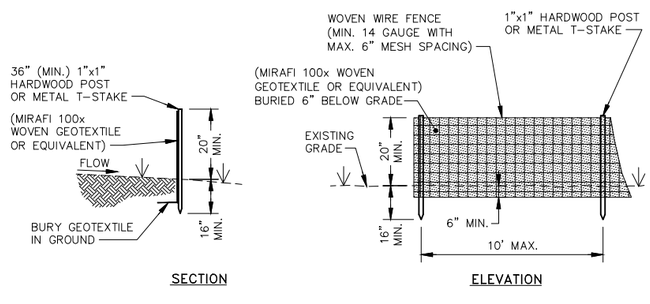


NOTES:

1. PLACE COIR LOGS ALONG THE MHHW AS SHOWN ON DRAWING C–104.
2. USE OF COIR LOGS IS INTENDED TO PROTECT AGAINST EXCESSIVE FLOWS.
3. EXCAVATE SHALLOW TRENCH APPROXIMATELY HALF OF THE COIR LOG DIAMETER ALONG THE MHHW ELEVATION AS SHOWN ON DRAWING C–104 AND PLACE SOIL LOG IN TRENCH WITH POSTS PLACED ON BOTH SIDES OF THE ROLL AS INDICATED IN DETAIL.
4. PLACE AND HAND TAMP EXCAVATED SOIL FROM TRENCH UPGRADIENT OF THE COIR LOG. PLANT SPECIFIED VEGETATION UP TO COIR LOG TO PROMOTE ROOT GROWTH INTO THE FIBER.
5. NOTCH POSTS AND TIE TOGETHER, ACROSS COIR LOG, WITH BIODEGRADABLE HIGH–TENSILE TWINE.
6. USE MINIMUM 12–INCH DIAMETER BIODEGRADABLE COIR LOGS WITH A MINIMUM DENSITY OF 9 LBS/FT^3 FROM EAST COAST EROSION, ROLANKA, OR GEI WORKS (OR APPROVED EQUAL).

BIODEGRADABLE COIR LOG DETAILS 2

NOT TO SCALE



NOTES:

1. PERIODICALLY REMOVE ACCUMULATIONS OF SEDIMENT ADJACENT TO SILT FENCES THROUGHOUT THE DURATION OF CONSTRUCTION ACTIVITIES.
2. REMOVE SILT ACCUMULATIONS WHEN DEPOSITS REACH APPROXIMATELY ONE–HALF OF THE HEIGHT OF SILT FENCE.
3. MAINTAIN THE INTEGRITY OF SILT FENCING FOR THE PROJECT DURATION AND UNTIL ADEQUATE VEGETATIVE GROWTH IS ESTABLISHED.

SILT FENCE 3

NOT TO SCALE

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Professional Engineer's Name: JASON D. BRIEN
Professional Engineer's No.: 084067

State	Date Signed	Project Mgr.
NY	12/3/2020	JDB
Designed by: JDB	Drawn by: LJP	Checked by: TLH

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FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

EROSION AND SEDIMENT CONTROL DETAILS

ARCADIS Project No.: 30057146.38
Date: DECEMBER 2020

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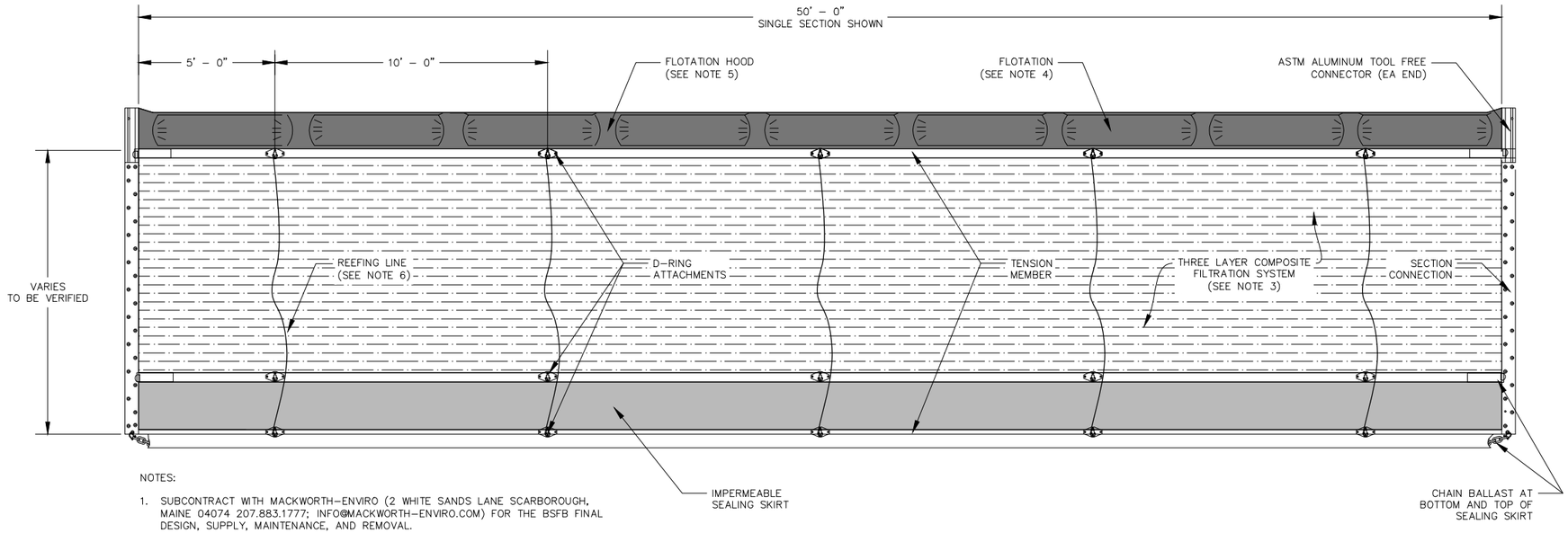
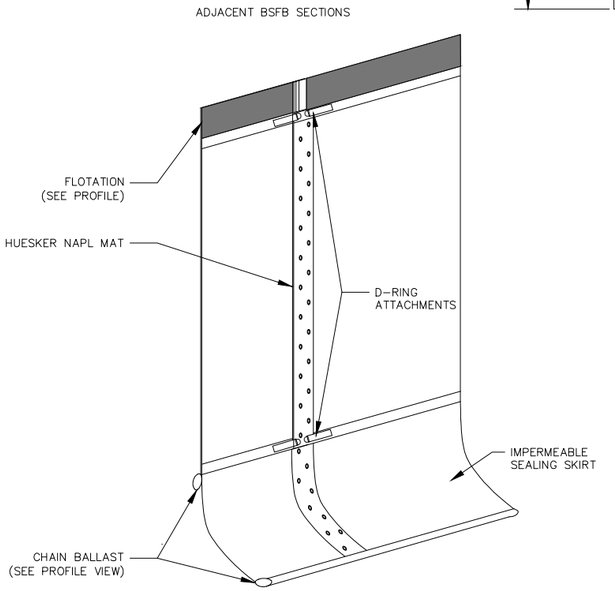


NOTES:

1. SUBCONTRACT WITH MACKWORTH–ENVIRO (2 WHITE SANDS LANE SCARBOROUGH, MAINE 04074 207.883.1777; INFO@MACKWORTH–ENVIRO.COM) FOR THE BSFB FINAL DESIGN, SUPPLY, MAINTENANCE, AND REMOVAL.
2. SEE SECTION 01 50 00 TEMPORARY FACILITIES AND CONTROLS FOR MATERIAL AND FABRICATION PRODUCT DETAILS.
3. THREE–LAYER COMPOSITE SYSTEM TO CONSIST OF WOVEN POLYPROPYLENE (ABRASION AND DEBRIS PROTECTION OUTER LAYERS) AND A NON–WOVEN POLYPROPYLENE INNER LAYER (PRIMARY FILTRATION LAYER).
4. USE CONTINUOUS POLYSTYRENE OR POLYETHYLENE CYLINDERS FOR FLOTATION.
5. WRAP FLOTATION WITH IMPERMEABLE COVERING SEWN INTO FILTER MEDIA.
6. CONNECT 3/8" TO 5/8" POLYPROPYLENE ROPE TO PAIRED D–RINGS LOCATED AT THE TOP OF COMPOSITE FILTRATION SYSTEM AND BOTTOM OF IMPERMEABLE SEALING SKIRT.
7. TAPER END SECTIONS TO FOLLOW BATHYMETRY LIMITING EXCESS FABRIC.
8. DEPLOY BSFB EAST (I.E, SHORE SIDE) OF STEEL ANCHOR PILINGS.
9. UTILIZE OIL ABSORBENT BOOMS IN ADDITION TO THE BSFB'S UPPER LOW–PERMEABILITY FLOATATION HOOD AS "FIRST LINE" OF PREVENTING SHEEN AND OIL MIGRATION ON THE WATER SURFACE.

BOTTOM SEALED FILTER BARRIER DETAIL (1)

NOT TO SCALE

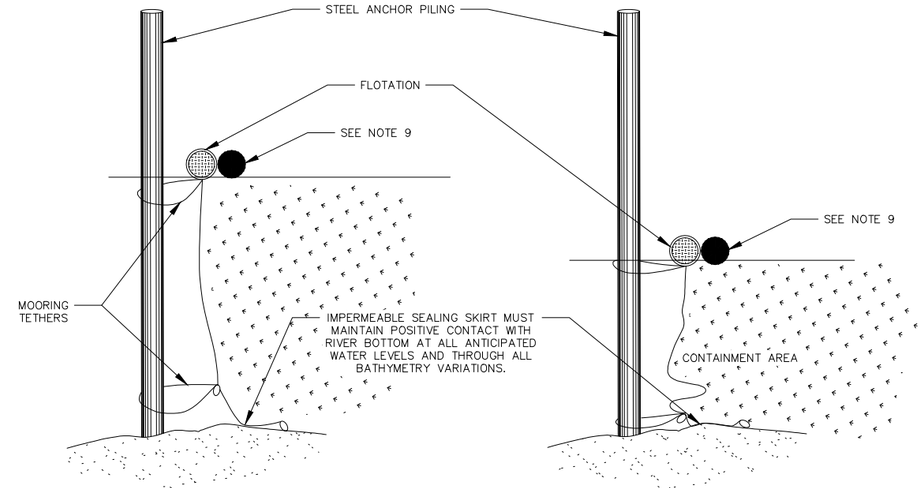


NOTES:

1. MIN 8–INCH OVERLAP.
2. PLACE LAYER OF HUESKER NAPL MAT BETWEEN OVERLAPPING PORTIONS OF BSFB SECTIONS.
3. INSTALL 7/8" I.D. STAINLESS STEEL (SS) GROMMETS IN EACH BOTL HOLE.
4. DOUBLE BOLT (TWO VERTICAL ROWS) WITH 6–INCH SPACING BETWEEN BOLTS.
5. USE GALVANIZED OR SS HARDWARE FOR ALL CONNECTIONS.
6. USE ASTM TOOL–FREE ALUMINUM CONNECTORS FOR FLOTATION HOOD CONNECTIONS.

TYPICAL SECTION TO SECTION CONNECTION DETAIL (2)

NOT TO SCALE



TYPICAL ELEVATION VIEW DETAIL (3)

NOT TO SCALE

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Professional Engineer's Name: JASON D. BRIEN
Professional Engineer's No.: 084067

State	Date Signed	Project Mgr.
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Designed by: JDB	Drawn by: LJP	Checked by: TLH

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CONSOLIDATED EDISON COMPANY OF NEW YORK, INC. • PEEKSKILL, NEW YORK
FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

BOTTOM SEALED AQUATIC FILTER BARRIER DETAILS

ARCADIS Project No. 30057146.38
Date DECEMBER 2020

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ONE LINCOLN CENTER
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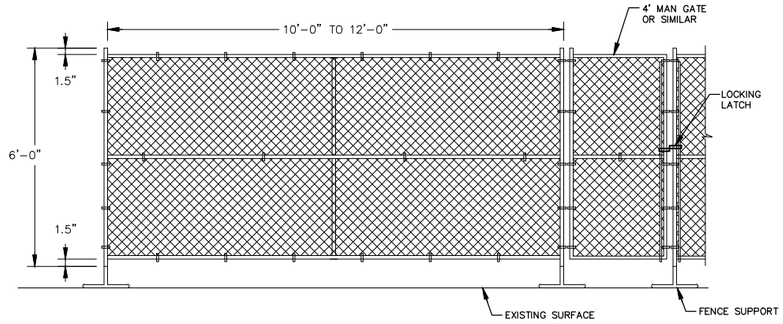

NOTES:

1. INSTALL SECURITY FENCE AND MAN GATES IN ACCORDANCE WITH THE REMEDIAL DESIGN.
2. CHAIN LINK FABRIC SHALL BE ONE PIECE OF 9–GAUGE STEEL WIRE FABRIC, WIDTH AS SHOWN ON THE DETAIL, 3– BY 5–INCH CHAIN–LINK WIRE WITH A WOVEN GEOTEXTILE VISUAL BARRIER MEETING THE SPECIFICATIONS OF US FABRIC INC. FENCE SCREEN 130 SERIES PRIVACY AIR OR EQUIVALENT.
3. WIRE TIES OR CLIPS WILL BE A MINIMUM OF 6 GAUGE. HOG RINGS MAY BE USED TO TIE FABRIC TO TENSION WIRE.
4. UNLESS STATED OTHERWISE, DIMENSIONS AND WEIGHTS SHALL BE AS LISTED IN TABLE G–503–A.

TABLE G-503-A – MINIMUM FENCE DIMENSIONS AND WEIGHTS

	OUTSIDE DIAMETER (INCHES)	WEIGHT/FOOT (POUNDS)
END, CORNER, AND PULL POSTS	2.875	5.79
LINE POSTS (HEAVY DUTY)	2.375	3.65
TOP RAILS AND BRACES	1.66	2.27
LEAVES 6 FEET WIDE OR LESS	2.875	5.79
LEAVES OVER 6 FEET UP TO 13 FEET WIDE	4.00	9.11

TYPICAL SECURITY FENCE AND MAN GATE DETAIL (1)

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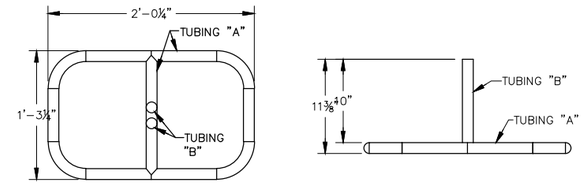

TUBING "A"	TUBING "B"
1–⅜"x16 GAUGE	1"x16 GAUGE

NOTES:

1. ALTERNATE SECURITY FENCE SUPPORTS MAY BE USED WITH NYSEG/REMEDIATION ENGINEER APPROVAL.
2. WEIGH DOWN SECURITY FENCE SUPPORTS WITH SAND BAGS AS NECESSARY.

SECURITY FENCE SUPPORT DETAIL (2)

NOT TO SCALE

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TEMPORARY SECURITY FENCING DETAILS

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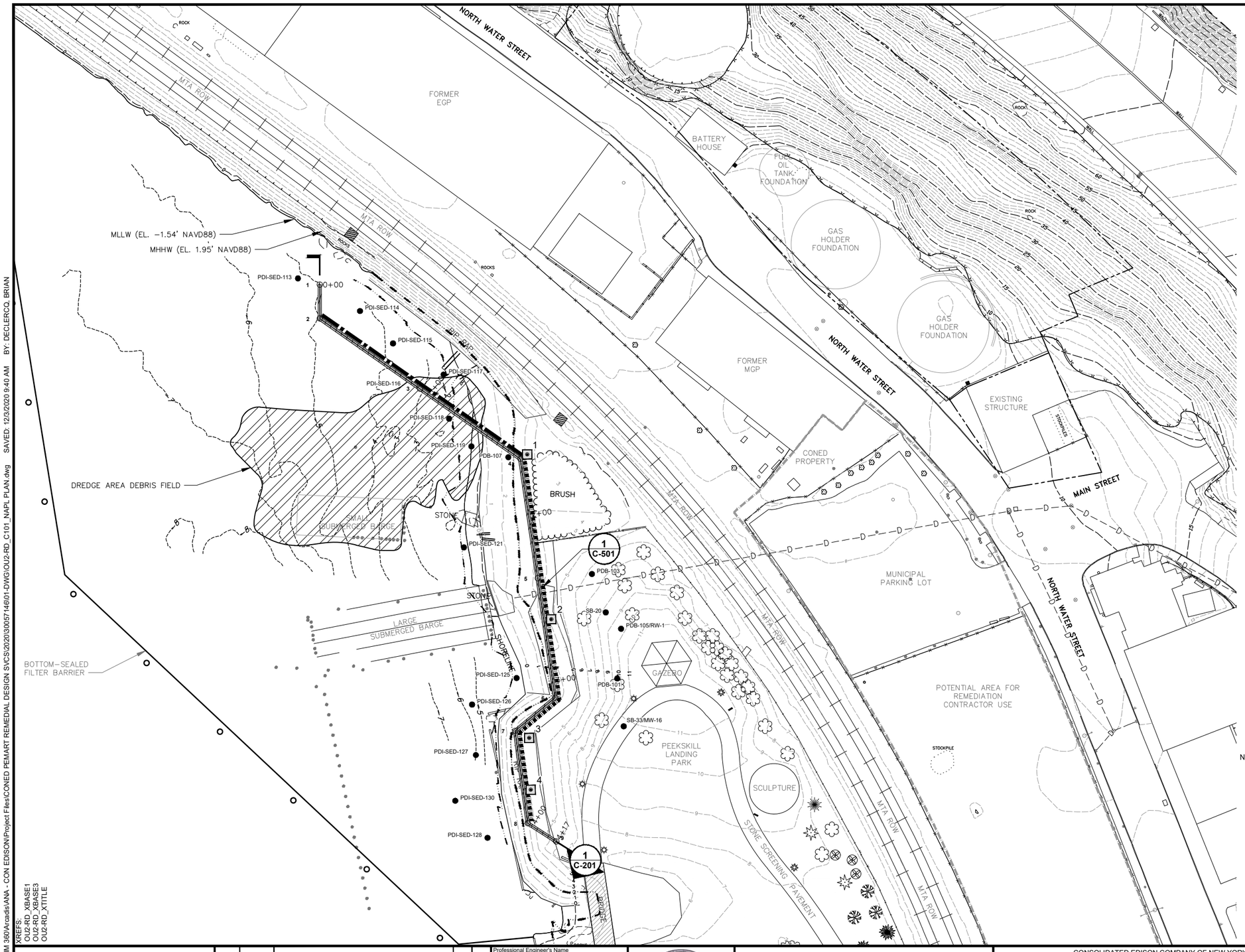

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LEGEND:

- NAPL BARRIER WALL
- 1 NAPL COLLECTION SUMP (3 / C-503)
- 1 CONTROL POINT
- PDI AND SHEETPILE DESIGN BORING LOCATIONS
- HYDRAULIC CONTROL TRENCH (1 / C-502)
- NAPL CONTROL TRENCH (2,3,4 / C-502)
- MHHW (EL. 1.95' NAVD88)
- MLLW (EL. −1.54' NAVD88)
- EXISTING UTILITY DRAIN
- VIBRATION AND OPTICAL SURVEY MONITORING POINTS

TABLE C-202-A NAPL BARRIER CONTROL POINT LOCATION			
ID	NORTHING	EASTING	ELEVATION (FT NAVD88)
1	895671.3482	648162.0133	~ -5 (SEE NOTE 3)
2	895651.1044	648162.0423	~ -5 (SEE NOTE 3)
3	895609.2637	648221.8626	~ -2 (SEE NOTE 3)
4	895567.4230	648281.6829	0.45
5	895496.1268	648292.0882	0.45
6	895424.8306	648302.4934	0.45
7	895405.0113	648278.6573	0.45
8	895349.9434	648286.1155	0.45
9	895339.0715	648303.1923	0.45

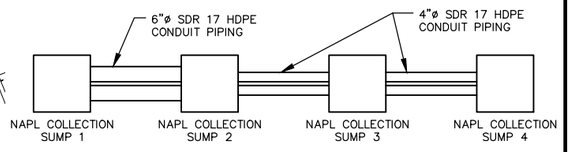
NOTES:

1. REMOVE DEBRIS INCLUDING, BUT NOT LIMITED TO SUNKEN BARGES AND WOODEN PILES PRIOR TO NAPL BARRIER WALL INSTALLATION.
2. NAPL BARRIER WALL CONSTRUCTION TO BE ACCESSED AND CONDUCTED VIA THE HUDSON RIVER AND PEEKSKILL BAY.
3. DRIVE TOP OF THE NAPL BARRIER WALL BELOW PRE−CONSTRUCTION GROUND SURFACE ELEVATION 0.45' AMSL NAVD 88 FLUSH WITH FINAL SEDIMENT RESTORATION ELEVATION.
4. DRIVE TOP OF THE NAPL BARRIER WALL ABOVE PRE−CONSTRUCTION GROUND SURFACE ELEVATION 0.45' AMSL NAVD 88 TO AN ELEVATION OF 0.45' AMSL NAVD 88 (I.E., APPROXIMATELY 1.5' BELOW MHHW).
5. RIVER BANK IS COVERED WITH RIP−RAP ADJACENT TO PEEKSKILL LANDING PARK PROPERTY. REMOVE AND STOCKPILE ON−SITE EXISTING RIP−RAP FROM SHORELINE AS NECESSARY TO ACCESS THE WORK AREA AND COMPLETE WORK. REPLACE RIP−RAP AFTER CONSTRUCTION IS COMPLETE AND IN ACCORDANCE WITH DETAILS 3 AND 4 ON DRAWING C−502. REMOVE AND DISPOSE OF DEBRIS AND OTHER MATERIAL (LOGS, RUBBISH, ETC.) OFF−SITE, AS NECESSARY, TO COMPLETE THE WORK. ACCESS TO PEEKSKILL LANDING PARK IS NOT PERMITTED.
6. DO NOT REMOVE SOIL ABOVE THE MHHW LINE EXCEPT AS NECESSARY FOR NAPL BARRIER WALL AND HYDRAULIC CONTROL TRENCH INSTALLATION.

TABLE C202-B NAPL COLLECTION SUMP CONTROL POINTS		
CONTROL POINT	NORTHING	EASTING
SUMP 1	895570.0039	648285.8672
SUMP 2	895471.6775	648300.1975
SUMP 3	895400.9002	648287.0426
SUMP 4	895369.9297	648287.9600

NOTES:

1. INSTALL 5−FOOT−LONG NAPL COLLECTION SUMPS FROM 1 TO 6 FEET BELOW THE TOP OF THE CONFINING UNIT. SEE DRAWING C−503.
2. APPROXIMATE ELEVATION OF CONFINING UNIT SHOWN ON DRAWING C−201.
3. CONTRACTOR TO CONFIRM DEPTH TO TOP OF CONFINING UNIT DURING NAPL COLLECTION SUMP INSTALLATION.



NOTES:

1. INSTALL CONDUIT PIPING BETWEEN NAPL COLLECTION SUMPS 1, 2, 3, AND 4 WITHIN THE HYDRAULIC CONTROL TRENCH AND BELOW FROST DEPTH.
2. TEE ALL CONDUIT PIPING TO CREATE CONTINUOUS CONNECTION BETWEEN ALL FOUR NAPL COLLECTION SUMPS.
3. INSTALL CONDUIT PIPING TO FACILITATE INSTALLATION OF NAPL CONVEYANCE TUBING AND AIR SUPPLY TUBING FOR PNEUMATIC PUMP AS PART OF AN AUTOMATED NAPL RECOVERY SYSTEM (IF IMPLEMENTED IN THE FUTURE).

TYPICAL CONDUIT PIPING DETAIL

NOT TO SCALE

30' 0 30' 60'
1"=30'

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No.	Date	Revisions	By	Ckd

Professional Engineer's Name: JASON D. BRIEN		
Professional Engineer's No.: 084067		
State: NY	Date Signed: 12/3/2020	Project Mgr.: JDB
Designed by: JDB	Drawn by: LJP	Checked by: TLH

STATE OF NEW YORK * JASON DAVID BRIEN * 084067 * LICENSED PROFESSIONAL ENGINEER

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FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

NAPL BARRIER WALL AND NAPL RECOVERY WELL ALIGNMENT PLAN

ARCADIS Project No.: 30057146.38

Date: DECEMBER 2020

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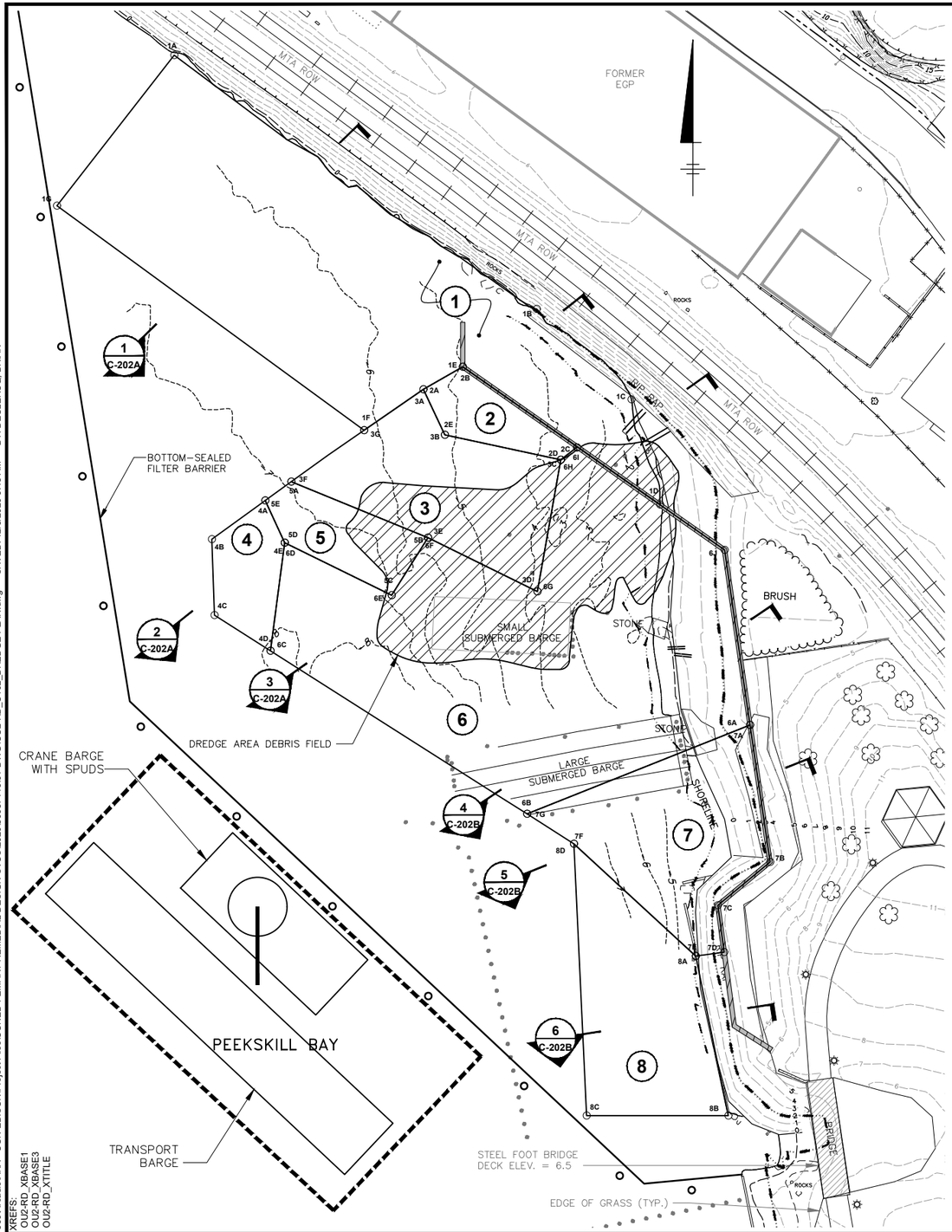

LEGEND:

- 2A ○ — CONTROL POINT
- ——— SEDIMENT REMOVAL AREA
- (3) — SEDIMENT REMOVAL AREA NUMBER
- ▭ — TRANSFER AREA (SEE NOTES 9 AND 10)

SEDIMENT EXCAVATION AND BACKFILL PLACEMENT:

1. REMOVE DEBRIS INCLUDING BUT NOT LIMITED TO SUNKEN BARGES AND WOODEN PILES PRIOR TO DREDGING.
2. CONDUCT A PRE-CONSTRUCTION BATHYMETRIC SURVEY TO DOCUMENT PRE-EXISTING CONDITIONS. DURING DREDGING ACTIVITIES, CONDUCT INTERIM MONITORING WITH THE USE OF RTK GPS ATTACHED TO THE DREDGING EQUIPMENT TO DOCUMENT THE LOCATION OF THE DREDGE EQUIPMENT AND CUT ELEVATION AT ANYTIME. CONDUCT A POST-DREDGING BATHYMETRIC SURVEY TO CONFIRM THAT THE REQUIRED TERMS OF THE CONTRACT HAVE BEEN MET.
3. GENERALLY CONDUCT SEDIMENT EXCAVATION TO MINIMIZE RECONTAMINATING DREDGED AREAS DURING SEDIMENT TRANSFER OPERATIONS. ALL EXCAVATIONS SHALL EXTEND DOWN TO SPECIFIED DEPTHS INDICATED IN TABLE 1 ON THIS DRAWING.
4. TAKE APPROPRIATE STEPS TO PROTECT THE STABILITY OF STRUCTURES WITHIN AND AROUND THE RIVER. REPAIR ANY DAMAGE RESULTING FROM EXCAVATION OPERATIONS, TRANSPORT OF EXCAVATED MATERIAL, OR OTHER CONSTRUCTION ACTIVITIES TO ITS ORIGINAL CONDITION (I.E., CONDITIONS THAT EXISTED PRIOR TO THE DAMAGE).
5. SEE DRAWINGS C-202A AND C-202B FOR SEDIMENT DREDGING CROSS SECTIONS. SLOPE REMOVAL AREA EDGES AS NECESSARY TO PREVENT SLOUGHING AND MAINTAIN A STABLE EXCAVATION SLOPE.
6. MANAGE MATERIAL THAT SLOUGHS INTO THE REMOVAL AREA WITH DREDGED SEDIMENTS AND RESTORE THE AREA OF SLOUGHING TO PRE-CONSTRUCTION GRADE.
7. EXCAVATE SEDIMENT REMOVAL AREAS 1, AND 8 TO THE TOE OF THE EXISTING RIPRAP OR BULKHEAD (IN AREA 8), WHERE PRESENT, OTHERWISE EXCAVATE TO MLLW.
8. REMOVE RIPRAP FROM RIVERBANK WITHIN AREA 7 PRIOR TO SEDIMENT REMOVAL. MAINTAIN BULKHEAD IN AREA 7 UNTIL ENGINEER AND OWNER CONDUCT INSPECTION TO ASSESS INTEGRITY AND APPROPRIATE BULKHEAD MANAGEMENT. REPLACE REMOVED RIP RAP AND ADD ADDITIONAL (AS NECESSARY) DURING RESTORATION.
9. CONTRACTOR IS RESPONSIBLE FOR SIZING AND DETERMINING MEANS AND METHODS FOR SEDIMENT TRANSFER OPERATIONS FROM THE DREDGE AREA TO THE TRANSPORT BARGE AND FROM THE TRANSFER BARGE TO THE SELECTED TREATMENT/DISPOSAL FACILITY. INDICATED TRANSFER AREA IS AN EXAMPLE ONLY.
10. COMPLETELY SURROUND ANY SEDIMENT TRANSFER OPERATIONS OUTSIDE OF THE BSFB WITH TURBIDITY CURTAINS AND OIL SORBANT BOOMS.

TABLE C-102-A

REMOVAL AREA	CONTROL POINT	EASTING	NORTHING
1	1A	648030.1502	895793.4715
	1B	648195.7962	895677.4342
	1C	648239.1464	895636.1860
	1D	648252.1852	895588.0548
	1E	648162.0423	895651.1044
	1F	648116.9228	895622.1238
SEE NOTE 7	1G	647976.5206	895724.7167
2	2A	648144.0379	895640.8248
	2B	648162.0423	895651.1044
	2C	648214.2528	895614.1620
	2D	648206.8393	895608.5513
	2E	648153.8525	895619.9758
3	3A	648144.0379	895640.8248
	3B	648153.8525	895619.9758
	3C	648206.8393	895608.5513
	3D	648196.1486	895548.3900
	3E	648146.1530	895572.9541
	3F	648083.6127	895598.5569
	3G	648116.9228	895622.1238
4	4A	648071.7953	895589.9892
	4B	648047.3459	895572.2631
	4C	648048.5115	895537.6101
	4D	648074.1168	895521.3341
	4E	648080.6499	895570.6709
5	5A	648083.6127	895598.5569
	5B	648146.1530	895572.9541
	5C	648129.5037	895546.6835
	5D	648080.6499	895570.6709
	5E	648071.7953	895589.9892
6	6A	648293.3591	895487.4183
	6B	648191.4128	895446.7744
	6C	648074.1168	895521.3341
	6D	648080.6499	895570.6709
	6E	648129.5037	895546.6835
	6F	648146.1530	895572.9541
	6G	648196.1486	895548.3900
	6H	648206.8393	895608.5513
	6I	648214.2528	895614.1620
	6J	648281.6829	895567.4230
7	7A	648293.3591	895487.4183
	7B	648302.4934	895424.8306
	7C	648278.6573	895405.0113
	7D	648281.5505	895383.6489
	7E	648268.4848	895381.8794
	7F	648212.8238	895433.1650
	7G	648191.4128	895446.7744
8	8A	648268.4848	895381.8794
	8B	648283.4072	895308.9457
	8C	648218.6122	895308.9199
SEE NOTE 7	8D	648212.8238	895433.1650

TABLE C-102-B
SEDIMENT REMOVAL SUMMARY

SEDIMENT REMOVAL AREA	ESTIMATED DREDGE DEPTH (FT-BSS)	APPROXIMATE VOLUME (CY)
1	2.0	1600
2	5.0	430
3	3.0	740
4	4.0	350
5	2.0	180
6	3.5	3290
7	4.5	1280
8	2.0	480
	TOTAL	8350

TABLE NOTES:

1. ESTIMATED SEDIMENT DREDGE DEPTH DEVELOPED FROM SEDIMENT BORINGS AS PRESENTED IN THE SUPPLEMENTAL SEDIMENT INVESTIGATION REPORT. ARCADIS, APRIL, 2012.
2. VOLUMES FOR EACH SEDIMENT REMOVAL AREA REPRESENT IN-SITU VOLUME ESTIMATES AND WERE CALCULATED USING THE ESTIMATED SEDIMENT DEPTH, 6-INCH OVER DREDGE ALLOWANCE, A 2:1 SLOPE, SLOPING OUTWARD WITHIN THE RIVER AROUND THE PERIMETER OF THE REMOVAL AREA, AND 10% CONTINGENCY FOR ADDITIONAL DREDGING BEYOND THE INDICATED LIMITS (AS DIRECTED/AUTHORIZED BY OWNER)..

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Professional Engineer's Name: JASON D. BRIEN
Professional Engineer's No.: 084067

State	Date Signed	Project Mgr.
NY	12/3/2020	JDB
Designed by: JDB	Drawn by: LJP	Checked by: TLH

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SEDIMENT DREDGING PLAN

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Date: DECEMBER 2020

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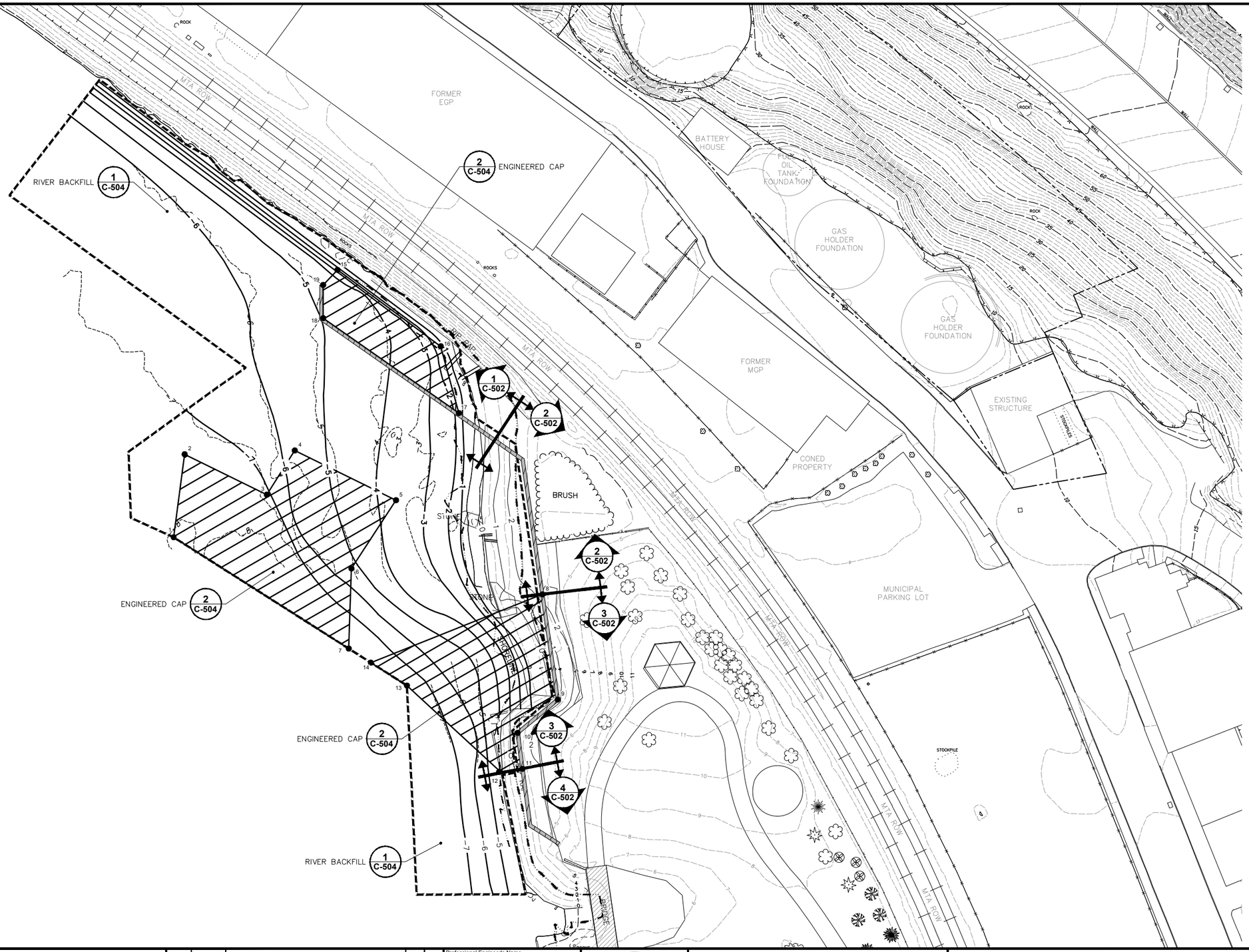

LEGEND:

- 0 — FINAL TOPOGRAPHIC CONTOURS
- –3– FINAL BATHYMETRIC CONTOURS
- APPROXIMATE SEDIMENT RESTORATION LIMITS
- LIMITS OF ENGINEERED CAP

TABLE C-103-A
ENGINEERED CAP CONTROL POINTS

CONTROL POINT ID	NORTHING	EASTING
1	895521.33	648074.12
2	895570.67	648080.65
3	895546.68	648129.50
4	895572.95	648146.15
5	895543.39	648206.33
6	895502.73	648179.83
7	895455.15	648178.24
8	895487.42	648293.36
9	895424.83	648302.49
10	895405.01	648278.66
11	895383.65	648281.55
12	895381.88	648267.66
13	895433.16	648212.82
14	895446.77	648191.41
15	895680.30	648171.57
16	895634.86	648232.93
17	895595.21	648243.72
18	895651.64	648163.04
19	895671.35	648163.01

NOTES:

1. BACKFILL SEDIMENT EXCAVATION AREAS WITH MATERIAL MEETING THE RIVER BACKFILL AND ORGANOCLAY/SAND BACKFILL REQUIREMENTS IN SPECIFICATION 31 05 05.
2. PLACE BACKFILL TO PRE-CONSTRUCTION GRADES, UNLESS OTHERWISE DIRECTED BY THE OWNER.

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30' 0 30' 60'
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Professional Engineer's Name: **JASON D. BRIEN**
Professional Engineer's No.: 084067
State: NY | Date Signed: 12/3/2020 | Project Mgr.: JDB
Designed by: JDB | Drawn by: LJP | Checked by: TLH

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SEDIMENT AND RIVERBANK RESTORATION PLAN

ARCADIS Project No.: 30057146.38
Date: DECEMBER 2020

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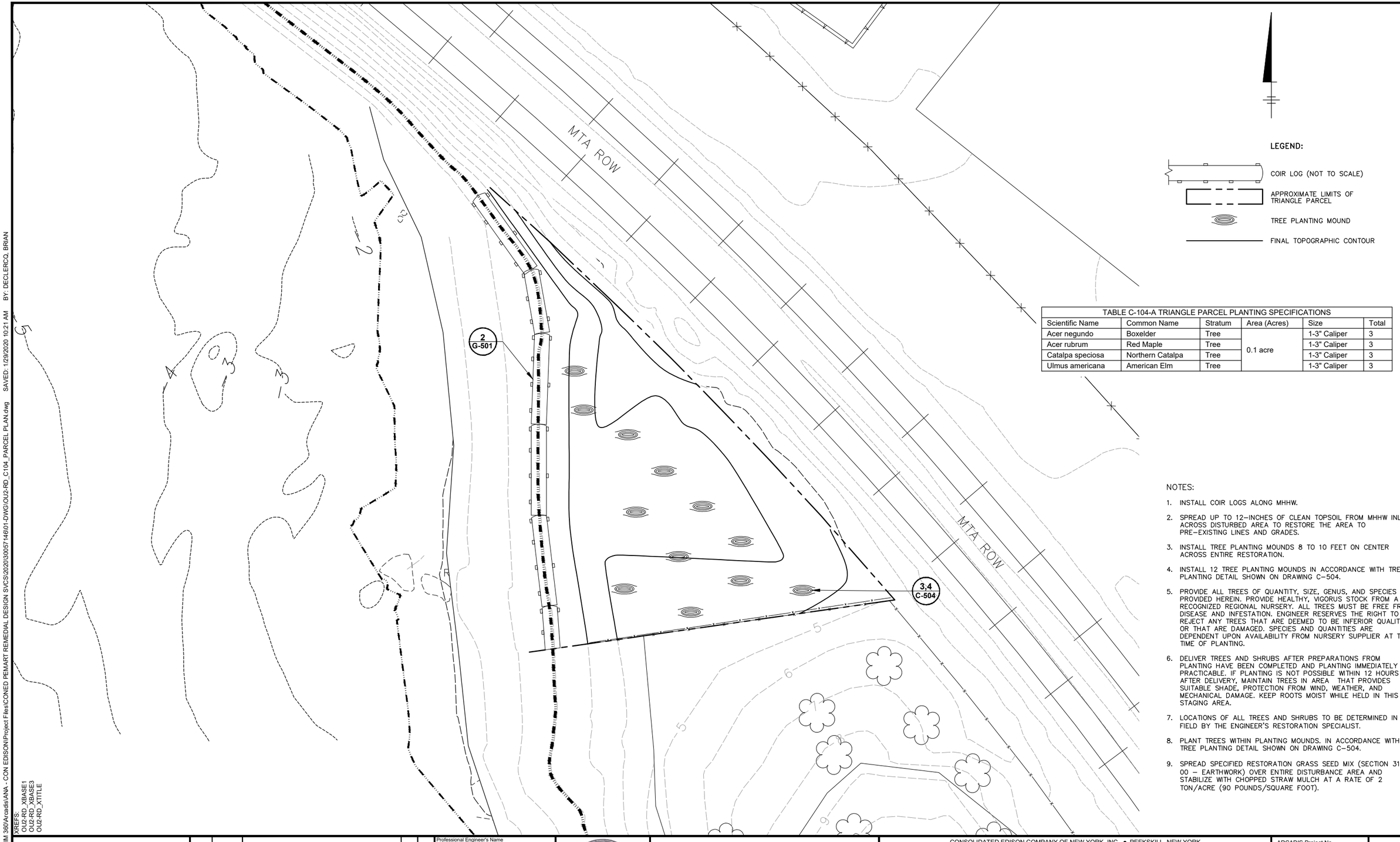

TABLE C-104-A TRIANGLE PARCEL PLANTING SPECIFICATIONS					
Scientific Name	Common Name	Stratum	Area (Acres)	Size	Total
Acer negundo	Boxelder	Tree	0.1 acre	1-3" Caliper	3
Acer rubrum	Red Maple	Tree		1-3" Caliper	3
Catalpa speciosa	Northern Catalpa	Tree		1-3" Caliper	3
Ulmus americana	American Elm	Tree		1-3" Caliper	3

NOTES:

1. INSTALL COIR LOGS ALONG MHHW.
2. SPREAD UP TO 12–INCHES OF CLEAN TOPSOIL FROM MHHW INLAND ACROSS DISTURBED AREA TO RESTORE THE AREA TO PRE–EXISTING LINES AND GRADES.
3. INSTALL TREE PLANTING MOUNDS 8 TO 10 FEET ON CENTER ACROSS ENTIRE RESTORATION.
4. INSTALL 12 TREE PLANTING MOUNDS IN ACCORDANCE WITH TREE PLANTING DETAIL SHOWN ON DRAWING C–504.
5. PROVIDE ALL TREES OF QUANTITY, SIZE, GENUS, AND SPECIES AS PROVIDED HEREIN. PROVIDE HEALTHY, VIGORUS STOCK FROM A RECOGNIZED REGIONAL NURSERY. ALL TREES MUST BE FREE FROM DISEASE AND INFESTATION. ENGINEER RESERVES THE RIGHT TO REJECT ANY TREES THAT ARE DEEMED TO BE INFERIOR QUALITY OR THAT ARE DAMAGED. SPECIES AND QUANTITIES ARE DEPENDENT UPON AVAILABILITY FROM NURSERY SUPPLIER AT THE TIME OF PLANTING.
6. DELIVER TREES AND SHRUBS AFTER PREPARATIONS FROM PLANTING HAVE BEEN COMPLETED AND PLANTING IMMEDIATELY IS PRACTICABLE. IF PLANTING IS NOT POSSIBLE WITHIN 12 HOURS AFTER DELIVERY, MAINTAIN TREES IN AREA THAT PROVIDES SUITABLE SHADE, PROTECTION FROM WIND, WEATHER, AND MECHANICAL DAMAGE. KEEP ROOTS MOIST WHILE HELD IN THIS STAGING AREA.
7. LOCATIONS OF ALL TREES AND SHRUBS TO BE DETERMINED IN THE FIELD BY THE ENGINEER'S RESTORATION SPECIALIST.
8. PLANT TREES WITHIN PLANTING MOUNDS. IN ACCORDANCE WITH TREE PLANTING DETAIL SHOWN ON DRAWING C–504.
9. SPREAD SPECIFIED RESTORATION GRASS SEED MIX (SECTION 31 00 00 – EARTHWORK) OVER ENTIRE DISTURBANCE AREA AND STABILIZE WITH CHOPPED STRAW MULCH AT A RATE OF 2 TON/ACRE (90 POUNDS/SQUARE FOOT).

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OU2-RD_XBASE3
OU2-RD_XTITLE

1"=10' (10' 0 10' 20')

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Professional Engineer's Name		
JASON D. BRIEN		
Professional Engineer's No.		
084067		
State	Date Signed	Project Mgr.
NY	12/3/2020	JDB
Designed by	Drawn by	Checked by
JDB	LJP	TLH

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TRIANGLE PARCEL RESTORATION PLAN

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DECEMBER 2020

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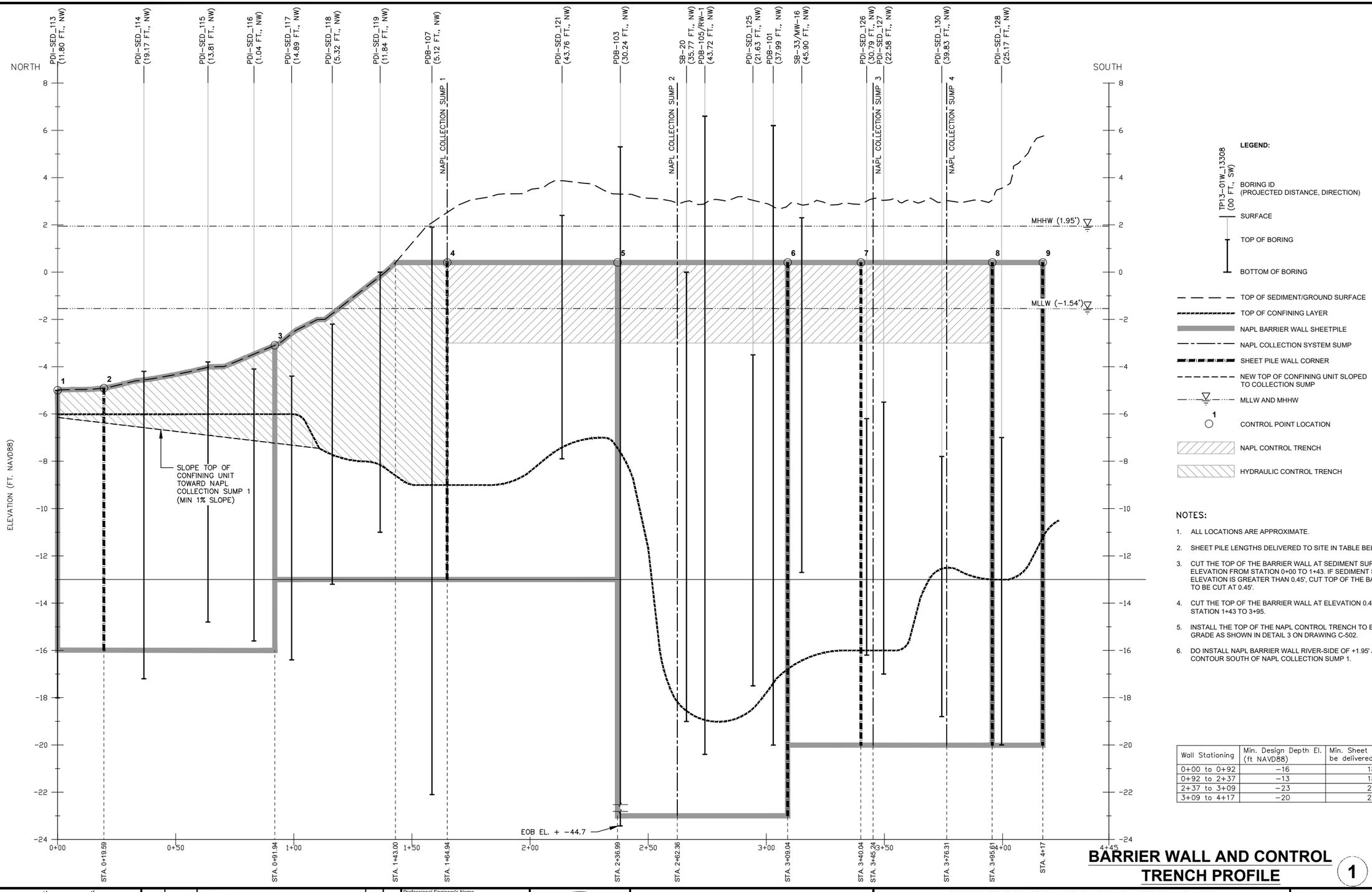

LEGEND:

- TP13-01W_13308 (00 FT., SW) — BORING ID (PROJECTED DISTANCE, DIRECTION)
- SURFACE
- TOP OF BORING
- BOTTOM OF BORING
- TOP OF SEDIMENT/GROUND SURFACE
- TOP OF CONFINING LAYER
- NAPL BARRIER WALL SHEETPILE
- NAPL COLLECTION SYSTEM SUMP
- SHEET PILE WALL CORNER
- NEW TOP OF CONFINING UNIT SLOPED TO COLLECTION SUMP
- MLLW AND MHHW
- 1 — CONTROL POINT LOCATION
- NAPL CONTROL TRENCH
- HYDRAULIC CONTROL TRENCH

NOTES:

1. ALL LOCATIONS ARE APPROXIMATE.
2. SHEET PILE LENGTHS DELIVERED TO SITE IN TABLE BELOW.
3. CUT THE TOP OF THE BARRIER WALL AT SEDIMENT SURFACE ELEVATION FROM STATION 0+00 TO 1+43. IF SEDIMENT SURFACE ELEVATION IS GREATER THAN 0.45', CUT TOP OF THE BARRIER WALL TO BE CUT AT 0.45'.
4. CUT THE TOP OF THE BARRIER WALL AT ELEVATION 0.45 FROM STATION 1+43 TO 3+95.
5. INSTALL THE TOP OF THE NAPL CONTROL TRENCH TO EXISTING GRADE AS SHOWN IN DETAIL 3 ON DRAWING C-502.
6. DO INSTALL NAPL BARRIER WALL RIVER-SIDE OF +1.95' AMSL NAVD88 CONTOUR SOUTH OF NAPL COLLECTION SUMP 1.

Wall Stationing	Min. Design Depth El. (ft NAVD88)	Min. Sheet Length to be delivered to site
0+00 to 0+92	-16	18
0+92 to 2+37	-13	18
2+37 to 3+09	-23	28
3+09 to 4+17	-20	25

BARRIER WALL AND CONTROL TRENCH PROFILE 1

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VERTICAL GRAPHIC SCALE 0 2' 4'
HORIZONTAL GRAPHIC SCALE 0 20' 40'

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NAPL BARRIER WALL AND NAPL RECOVERY WELL ALIGNMENT PROFILE

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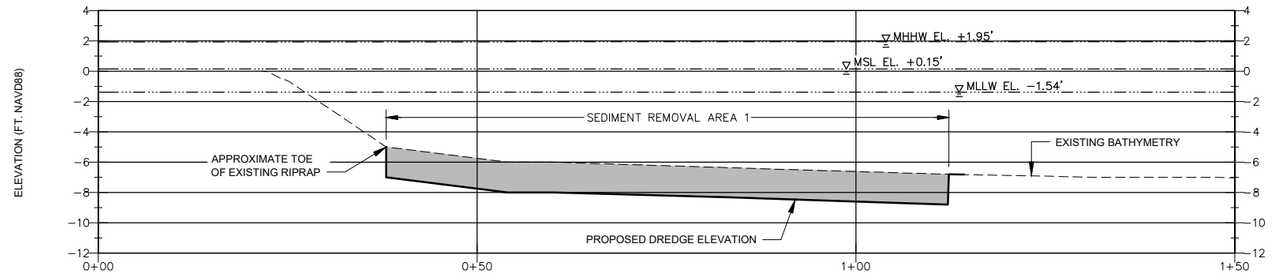
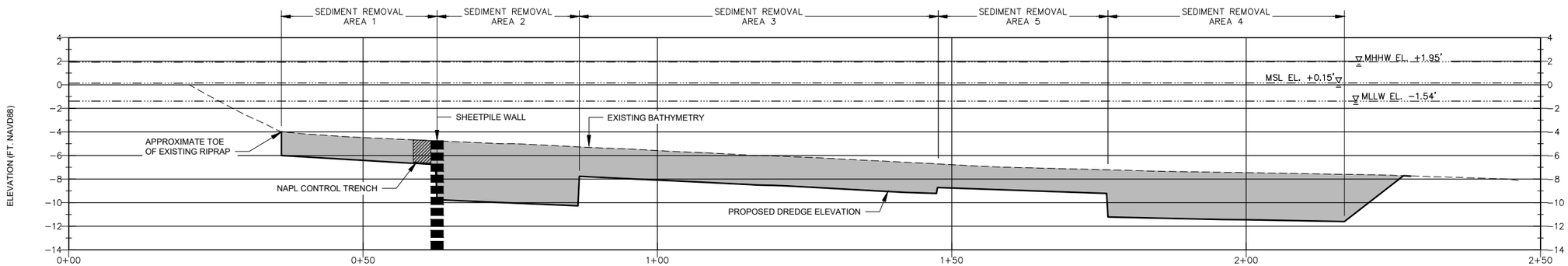
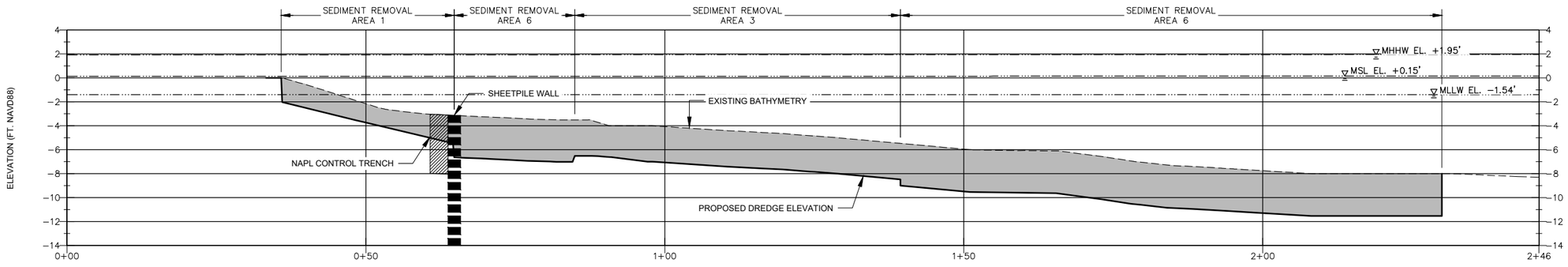


SEDIMENT DREDGING CROSS SECTION 1



SEDIMENT DREDGING CROSS SECTION 2



SEDIMENT DREDGING CROSS SECTION 3

LEGEND:

DREDGE MATERIAL

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FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

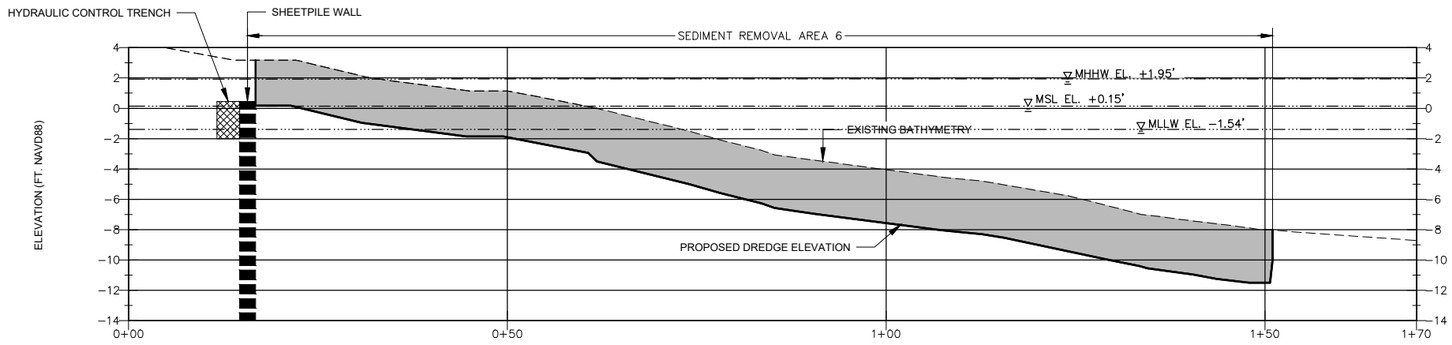
SEDIMENT DREDGING CROSS SECTIONS

ARCADIS Project No.: 30057146.38

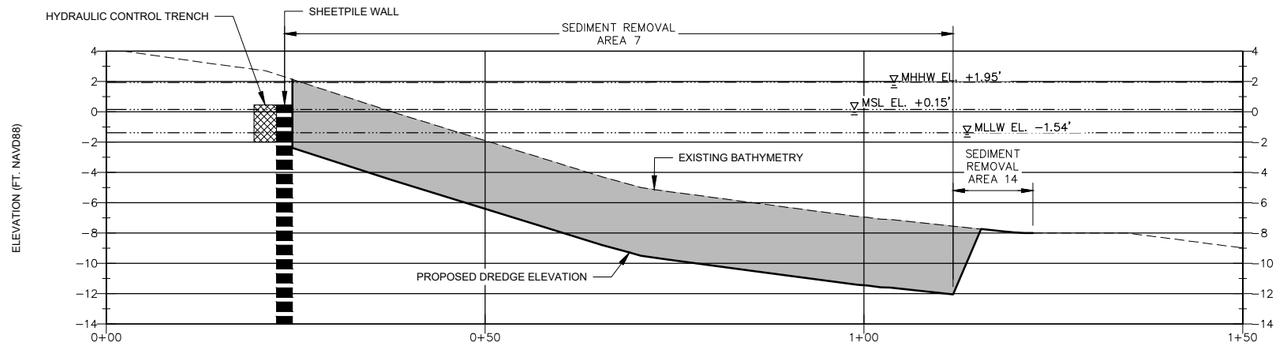
Date: DECEMBER 2020

ARCADIS
ONE LINCOLN CENTER
110 W. FAYETTE ST., SUITE 300
SYRACUSE, NY 13202
TEL. 315.442.9120

C-202A



SEDIMENT DREDGING CROSS SECTION 4



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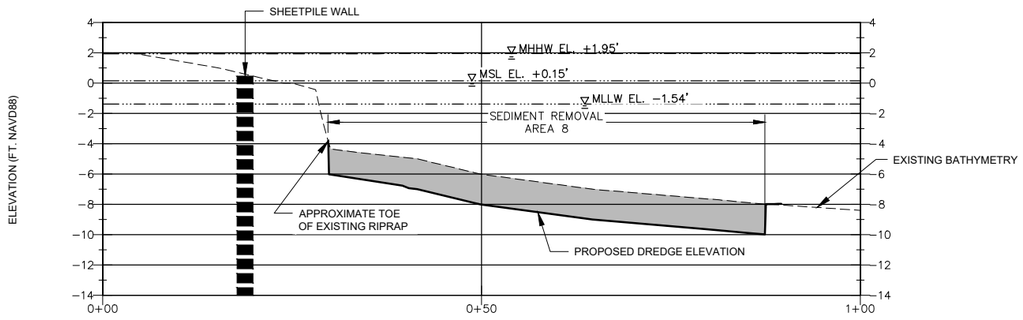

SEDIMENT DREDGING CROSS SECTION 6

LEGEND:

DREDGE MATERIAL

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No.	Date	Revisions	By	Ckd.

Professional Engineer's Name: JASON D. BRIEN
Professional Engineer's No.: 084067
State: NY | Date Signed: 12/3/2020 | Project Mgr.: JDB
Designed by: JDB | Drawn by: LJP | Checked by: TLH

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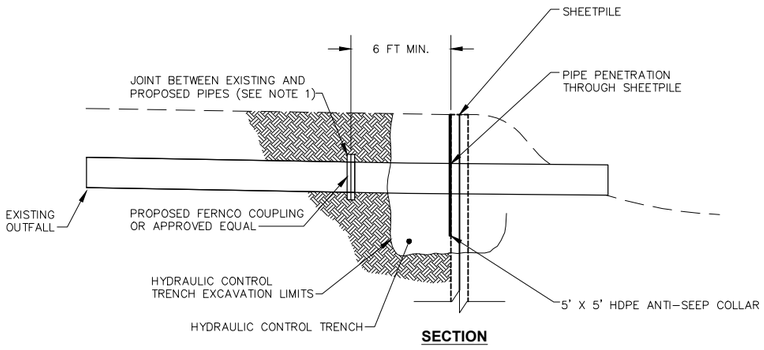
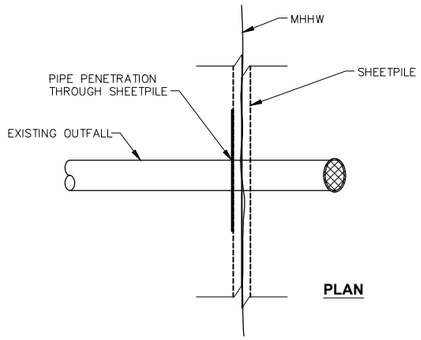


SECTION

NOTES:

1. MAKE CLEAN CUT TO EXISTING OUTFALL PIPES TO FACILITATE INSTALLATION OF NAPL BARRIER WALL AND FACILITATE COUPLING OLD AND NEW PIPE SEGMENTS.
2. TAKE NECESSARY PRECAUTIONS TO MINIMIZE DAMAGE TO EXISTING HEADWALLS (IF PRESENT).
3. CONDUCT PRE-DRILLING/PRE-TRENCHING AS NECESSARY TO IDENTIFY AND REMOVE OBSTRUCTIONS AND DRAINPIPE SEGMENTS PRIOR TO DRIVING SHEETING.
4. PROVIDE ALL MATERIALS AND EQUIPMENT (E.G., PLUGS, PUMPS, HOSE, FILTER SOCKS) TO TEMPORARILY MANAGE STORMWATER (E.G., TEMPORARILY PLUG OUTFALL PIPE AND BYPASS PUMP STORMWATER FROM UPSTREAM CATCHBASIN) AFTER CUTTING EXISTING PIPE SECTION AND UNTIL PIPE PENETRATION IS COMPLETED.
5. CUT HOLE THROUGH INSTALLED NAPL BARRIER WALL TO FACILITATE PIPE PENETRATION. DO NOT INSTALL CUT HOLE IN SHEETPILE PRIOR TO DRIVING SHEETPILE. MINIMIZE HOLE DIAMETER TO THE EXTENT POSSIBLE.
6. PROVIDE AND INSTALL 5 FT BY 5 FT HDPE ANTISEEP COLLAR (OR EQUAL). EXTRUSION WELD ANTI-SEEP COLLAR TO OUTFALL EXTENSION HDPE PIPE.
7. CONDUCT WORK AT LOW TIDE WHEN POSSIBLE TO MINIMIZE WATER MANAGEMENT.



PLAN

BARRIER WALL PENETRATION DETAIL (1)

NOT TO SCALE

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Professional Engineer's No.: 084067		
State: NY	Date Signed: 12/3/2020	Project Mgr.: JDB
Designed by: JDB	Drawn by: LJP	Checked by: TLH

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FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

BARRIER WALL DETAILS

ARCADIS Project No.
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DECEMBER 2020

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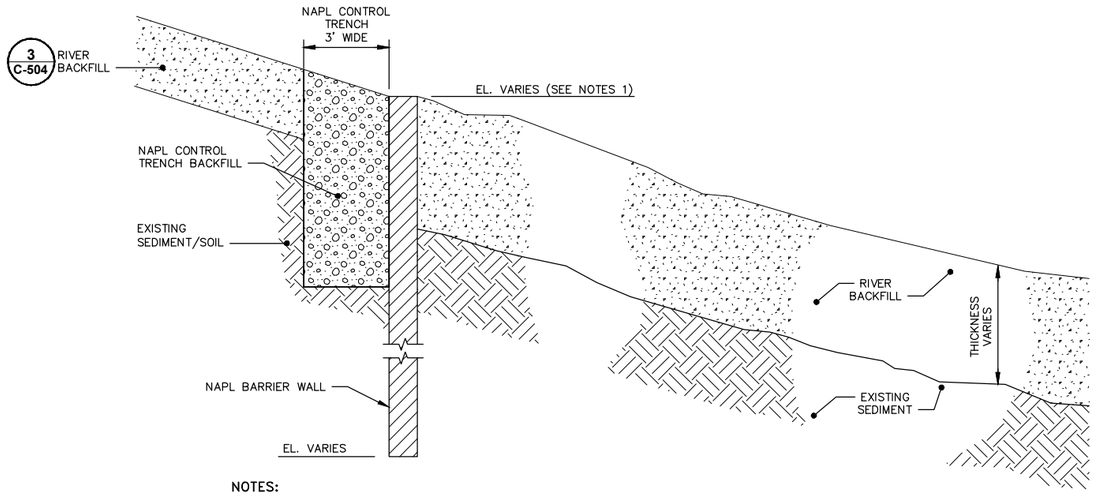


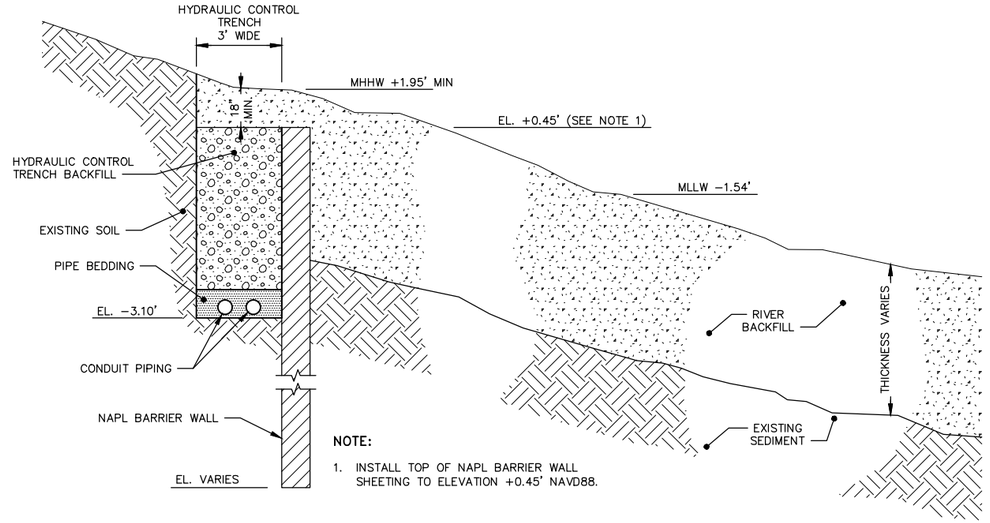
NOTES:

1. CUT–OFF NAPL BARRIER WALL SHEETING AT EXISTING SEDIMENT SURFACE ELEVATION ALONG ALIGNMENT.
2. SLOPE BOTTOM OF NAPL CONTROL TRENCH TOWARDS NAPL COLLECTION SUMP 1 AT ELEVATIONS SHOWN ON DRAWING C–201.

BARRIER WALL AND NAPL CONTROL TRENCH TYPICAL RESTORATION DETAIL STA. 0+00 TO STA. 1+46 (SEE DRAWING C-103)

1

NOT TO SCALE



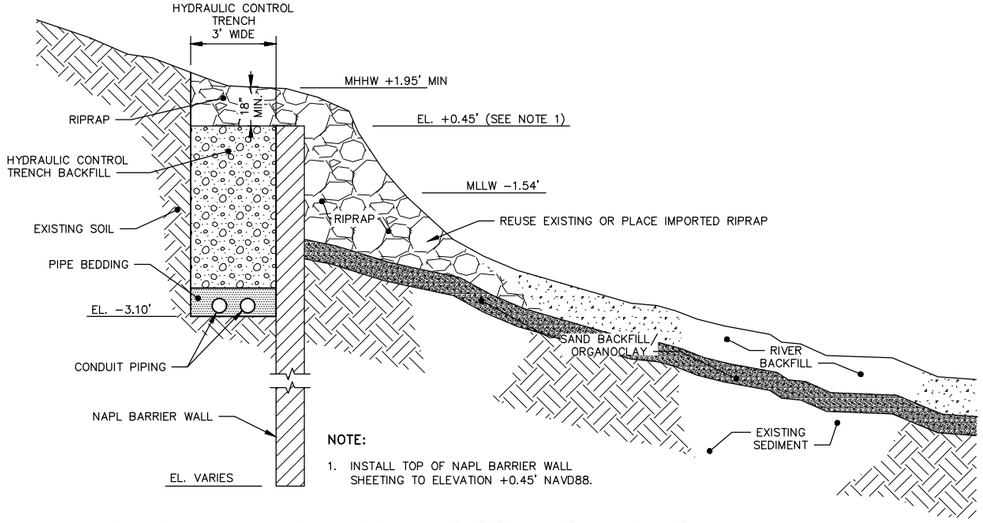
NOTE:

1. INSTALL TOP OF NAPL BARRIER WALL SHEETING TO ELEVATION +0.45' NAVD88.

BARRIER WALL AND HYDRAULIC CONTROL TRENCH TYPICAL RESTORATION DETAIL STA. 1+46 TO STA. 2+47 (SEE DRAWING C-103)

2

NOT TO SCALE



NOTE:

1. INSTALL TOP OF NAPL BARRIER WALL SHEETING TO ELEVATION +0.45' NAVD88.

BARRIER WALL AND HYDRAULIC CONTROL TRENCH WITH RIPRAP TYPICAL RESTORATION DETAIL STA. 2+47 TO STA. 3+63 (SEE DRAWING C-103)

3

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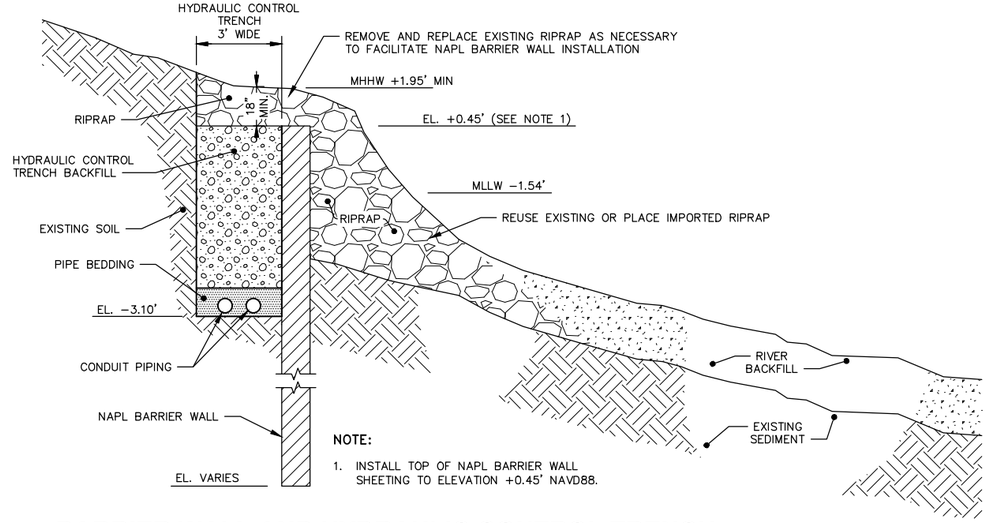

NOTE:

1. INSTALL TOP OF NAPL BARRIER WALL SHEETING TO ELEVATION +0.45' NAVD88.

BARRIER WALL AND HYDRAULIC CONTROL TRENCH WITH RIPRAP TYPICAL RESTORATION DETAIL STA. 3+63 TO STA. 3+97 (SEE DRAWING C-103)

4

NOT TO SCALE

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Professional Engineer's Name: JASON D. BRIEN		
Professional Engineer's No.: 084067		
State: NY	Date Signed: 12/3/2020	Project Mgr.: JDB
Designed by: JDB	Drawn by: LJP	Checked by: TLH

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FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

CONTROL TRENCH DETAILS

ARCADIS Project No.: 30057146.38
Date: DECEMBER 2020

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ONE LINCOLN CENTER
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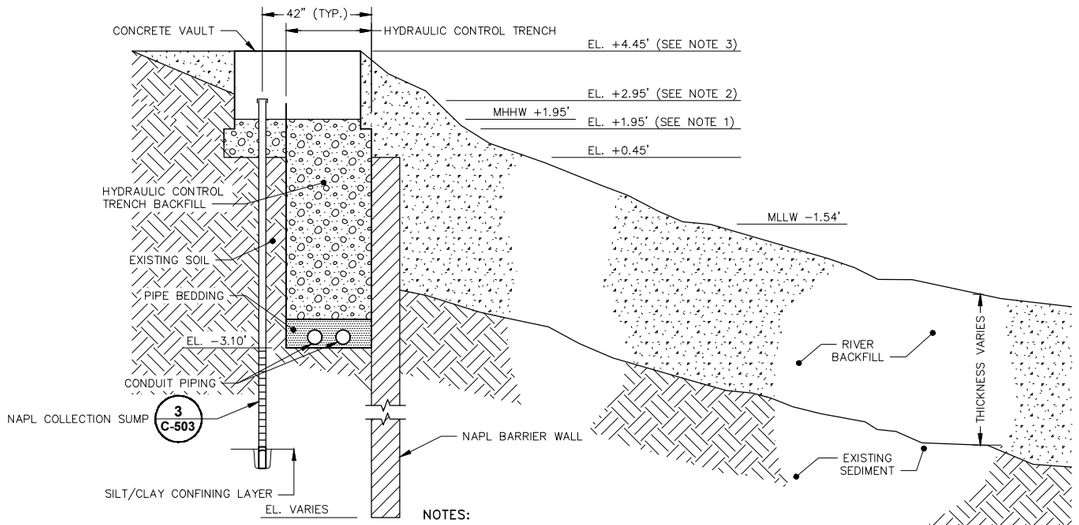
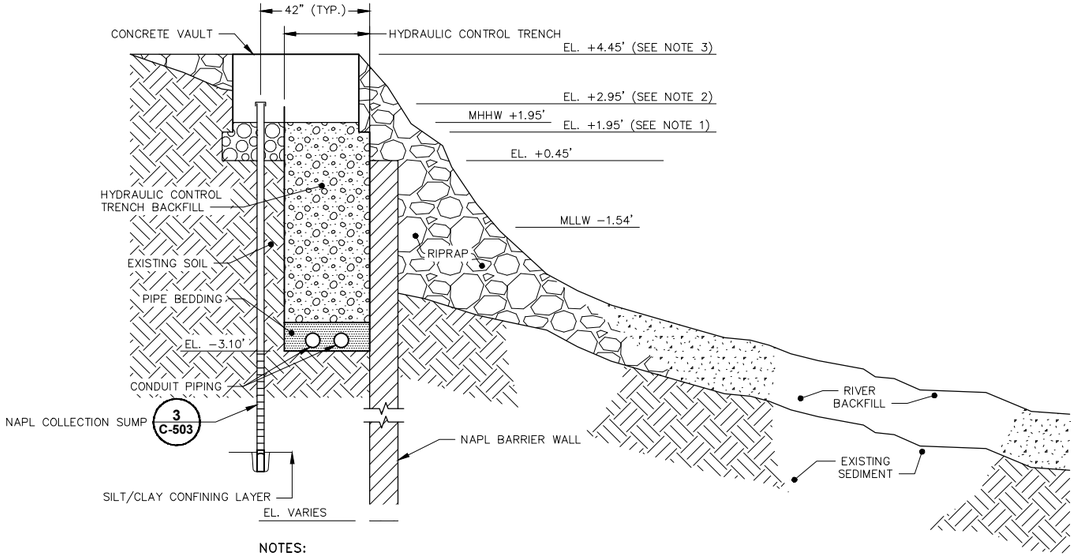


NOTES:

1. INSTALL HYDRAULIC CONTROL TRENCH BACKFILL TO +1.95' (NAVD88).
2. INSTALL TOP OF NAPL COLLECTION SUMP TO +2.95' (NAVD88).
3. INSTALL TOP OF CONCRETE VAULT TO +4.45' (NAVD88).

NAPL COLLECTION SUMP NO. 1 (1)

NOT TO SCALE

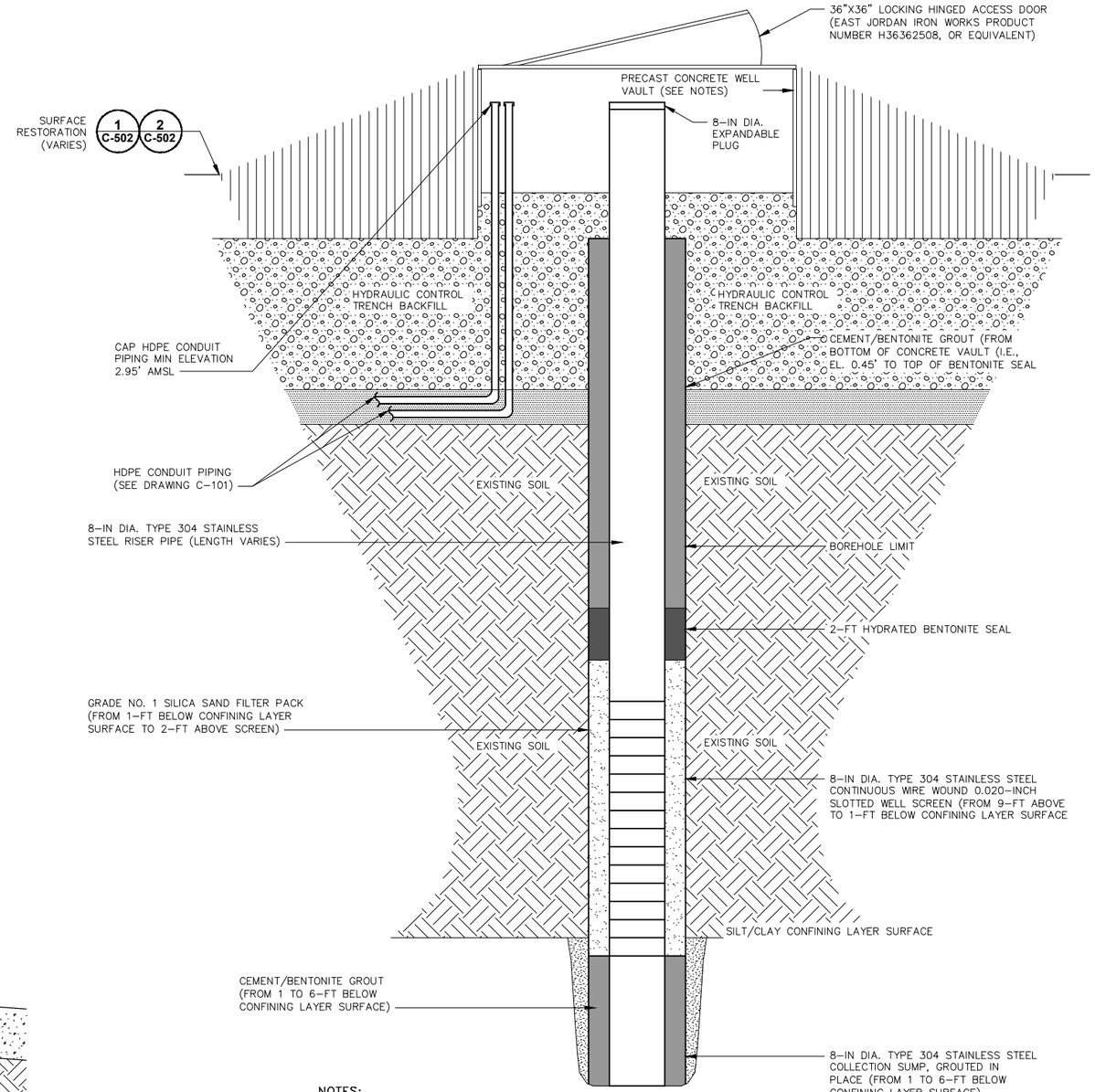


NOTES:

1. INSTALL HYDRAULIC CONTROL TRENCH BACKFILL TO +1.95' (NAVD88).
2. INSTALL TOP OF NAPL COLLECTION SUMP TO +2.95' (NAVD88).
3. INSTALL TOP OF CONCRETE VAULT TO +4.45' (NAVD88).

NAPL COLLECTION SUMPS NOs. 2 AND 3 (2)

NOT TO SCALE



NOTES:

1. CONCRETE WELL VAULT WILL BE OPEN-BOTTOM 48"LX48"WX48"DX6" THICK (INSIDE DIMENSIONS).
2. CONCRETE WELL VAULT WILL BE CONSTRUCTED OF PRE-CAST CONCRETE AT 4,000 PSI AT 28 DAYS.
3. WELDED WIRE MESH WILL BE IN ACCORDANCE WITH ASTM A185.
4. REBAR WILL BE IN ACCORDANCE WITH ASTM GRADE 60.
5. JOINT SEALANT WILL BE BUTYL RUBBER MEETING THE REQUIREMENTS OF FEDERAL SPECIFICATION SS-S-210A AND AASHTO M-198.

NAPL COLLECTION SUMP DETAIL (3)

NOT TO SCALE

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Professional Engineer's Name: JASON D. BRIEN
Professional Engineer's No.: 084067

State	Date Signed	Project Mgr.
NY	12/3/2020	JDB

Designed by	Drawn by	Checked by
JDB	LJP	TLH

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NAPL COLLECTION SUMP DETAILS

ARCADIS Project No. 30057146.38
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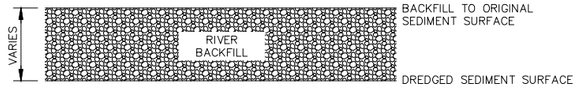

TYPICAL SEDIMENT RESTORATION DETAIL 1

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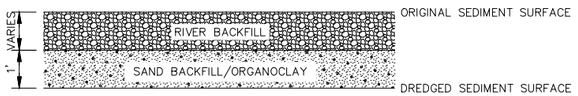

TYPICAL SEDIMENT RESTORATION IN ENGINEERED CAP AREAS DETAIL 2

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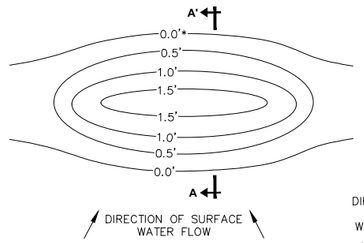

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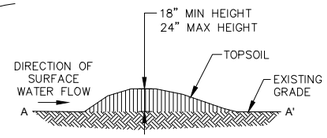
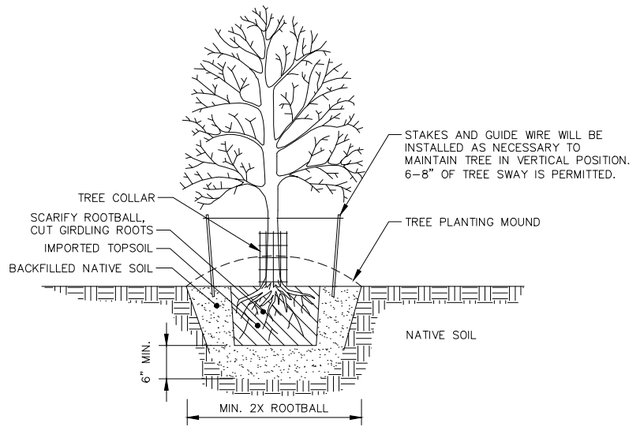


SECTION A-A'

NOTE: 0.0' ELEVATION = SURROUNDING GROUND SURFACE

TREE PLANTING MOUND 3

NOT TO SCALE



TREE PLANTING DETAIL 4

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FORMER PEMART AVENUE WORKS MGP SITE REMEDIAL DESIGN - OPERATIONAL UNIT 2

RESTORATION DETAILS

ARCADIS Project No.: 300571461.38

Date: DECEMBER 2020

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110 W. FAYETTE ST., SUITE 300
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TEL. 315.442.9120

C-504

APPENDIX B

OU-2 Technical Specifications

TABLE OF CONTENTS

END OF TABLE OF CONTENTS

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SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
1. This technical specification includes Contractor requirements for conducting the following:
a. Summary of Work
1) The remediation work (the Work) or the project (the Project) is located at and near the site of a former Con Edison manufactured gas plant (MGP) on North Water Street in the City of Peekskill, Westchester County, New York. The Work area, Operable Unit 2 (OU-2), consists of the lands between the Metropolitan Transit Authority (MTA) right of way (ROW) and the shoreline of Peekskill Bay as well as the near-shore sediment of Peekskill Bay that contain potential MGP-related impacts. The OU-2 work area consists of an approximately 1.3-acre area of intertidal and subtidal areas and underwater lands.
2) The Work for this project was initiated under a Voluntary Cleanup Agreement (VCA) Index Number D2-003-02-08 between Con Edison and the New York State Department of Environmental Conservation (NYSDEC) prior to being transferred to a Multi-site Order on Consent and Administrative Settlement (i.e., the Order), Index No. CO 0-20180516-519. The work for this Contract will be performed under the Order. The details of the selected remedy are presented in a Decision Document (NYSDEC August 2014). The primary components of the selected remedy for OU-2 consist of the following:
a) Mobilizing personnel, equipment, and materials to the site.
b) Site preparation.
c) Removing trees, vegetation and debris to facilitate completion of the Work.
d) Installing a NAPL barrier wall to prevent future NAPL migration to Peekskill Bay.
e) Installing NAPL collection sumps and conduit piping to facilitate future automated NAPL recovery as deemed appropriate.
f) Dredging approximately 9,000 cubic-yards of NAPL-impacted sediments to depths up to 5 feet below existing sediment surface in the intertidal and subtidal zones to the extent practicable.
g) Removing debris, dredge, and construction waste from the site for processing, low-temperature thermal desorption (LTTD) treatment and/or disposal at appropriate, Owner-approved facilities in accordance with Laws and Regulations.
h) Transporting dredged material to an approved, permitted off-site facility(ies) for processing, treatment, and disposal.
i) Backfilling the dredge area including an engineered cap in areas where sediments containing minor visual NAPL indications deeper than 5 feet below the sediment surface remain.
j) Restoring the site to pre-construction conditions.
3) Contracting Method: Work will be performed under one prime contract.
4) Contaminants: Work includes removal and management of MGP Waste and other site-related Contaminants. Environmental conditions at the site are detailed in the following reports.

a) RETEC. 2003. Historical Investigation Report. Former Peekskill – Pemart Avenue MGP Site. January.
b) ENSR. 2007. Remedial Investigation Report. Former Pemart Avenue Works Manufactured Gas Plant (MGP) and Electric Generating Plant (EGP). February.
c) ENSR. 2008. Remedial Investigation Addendum. Former Pemart Avenue Works Manufactured Gas Plant (MGP) and Electric Generating Plant (EGP). March.
d) Arcadis. 2012. Supplemental Sediment Investigation Report. Former Pemart Avenue Works Manufactured Gas Plant Site. April.
e) Arcadis. 2013. Alternatives Analysis Report. Former Pemart Avenue Works Manufactured Gas Plant Site. April.
f) Pre-design investigation boring logs. 2013, 2014, 2016, 2018
g) The technical data contained in such report upon which Contractor may rely are: the boring method, the boring locations and logs, water levels (if any), laboratory test methods and results, and similar factual data. Borehole information represents subsurface characteristics to the extent indicated, only for the point location of the borehole and, regarding the water level (if any), only at the time the boring was made. Contractor shall make its own interpretations of the subsurface characteristics to be encountered between boreholes and its own water level fluctuation interpretations at and between boreholes.
h) Copies of the above reports are available digitally, upon request to Owner.

b. Site Security and Access
   1) Implementing measures to provide security and to restrict project work limit access to authorized personnel.
c. Contractor's Project Operations Plan
   1) Preparing and submitting a Project Operations Plan (POP) in accordance with this Section to Engineer (and Owner) for review and approval.
   2) Describing proposed means, methods, and sequence of construction operations, and demonstrating compliance with the Contract Documents.

B. Related Sections
   1. Section 01 35 29 – Contractor's Health and Safety Plan
   2. Section 01 50 00 – Temporary Facilities and Controls
   3. Section 01 70 00 – Execution and Closeout Requirements
   4. Section 31 00 00 – Earthwork
   5. Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal
   6. Section 35 31 16 – NAPL Barrier Wall and Collection System

1.02 COORDINATION

A. Summary of Work
   1. Contractor's use of Site:
      a. Confine construction operations to the Project Work Limits shown or indicated on the Design Drawings. Do not disturb portions of the Site beyond the Project Work Limits.
      b. To the extent practicable, conduct all work in such manner that will cause the minimum inconvenience and disturbance to the surrounding community including recreational activities in Peekskill Landing Park.
      c. Authorities having jurisdiction at the Site and others performing work for the Owner will, for all purposes that may be required by their contracts, have access to the Site and the premises used by the Contractor, and the Contractor must provide safe and proper access.

2. Promptly repair damage to premises caused by construction operations. Upon completion of the Work, restore premises to specified condition. If condition is not specified, restore to pre-construction condition.
3. Easements and Rights-of-Way:
   a. The Owner (i.e., Consolidated Edison Company of New York, Inc.) will coordinate access to Work Areas, including with property owners, City of Peekskill (Peekskill Landing Park and property under water), Metro-North Railroad (property under water), Philip Miller (200 North Water St – "Triangle Parcel").
   b. Confine construction operations within Owner's property, easements obtained by Owner, and the limits shown or pre-cleared (if pre-clearing has been performed). Do not enter private property outside the construction limits without permission from the property owner.
   c. On Private Property: Contractor's operation limits on private property are shown on the Design Drawings.
4. Authorities of Properties Adjacent to the Work:
   a. Notify Owner when execution of the Work may affect adjacent properties or use of adjacent properties. Owner will notify adjacent property owners; do not contact adjacent property owners directly unless authorized by Owner to do so.
   b. When it is necessary to temporarily obstruct access to property, or when utility service connection will be interrupted, provide notices sufficiently in advance to Owner so that appropriate notifications, etc. can be made.

B. Site Security and Access
   1. Submittals
      a. Security Plan:
         1) Submit a written Contractor's Security Plan as a sub-section of the Contractor's Project Operations Plan. The plan must include an inventory of equipment to be used and a schedule for construction of security measures to be implemented by the Contractor with respect to the Contractor's equipment and security responsibilities. At a minimum, the plan shall include the following:
            a) Procedures for securing all equipment and work areas when unattended. This includes locking cabs and removing keys when the equipment is not in use.
            b) Sign-in and sign-out requirements for all site entrants. Maintain a list of all Project Team members from the Contractor, Owner and Engineer who are typically at the site or may have occasion to be at the site (weekly meetings, inspections, etc.).
            c) Requirements for authorizing visitors/site entrants not included on the "Typical Team Member" list (e.g., photo ID verification, sign-in, notification to the Contractor's Site Supervisor to confirm that site entry is permitted).
            d) All site entrants must have proof on file of Occupational Safety and Health Administration (OSHA) 40-hour certification and be up to date with annual refresher requirements to enter the exclusion zone.
            e) Reporting protocol for damaged, lost or vandalized equipment.
            f) Example of the Daily Sign-in Log for the site.
            g) Identification of Site Security Subcontractor person(s) who will be responsible for maintaining the Daily Sign-in Log.
      b. Maintain a daily log of workers and visitors for review upon request.

C. Contractor's Project Operation Plan
   1. Submittals
      a. Informational Submittals:
         1) Contractor's POP: Contractor's POP must address and include the following:

a) Contractor's Organizational Structure: Specific chain of command and overall responsibilities of Contractor personnel including:
   - Name and general functions and responsibilities of the following:
     - Project manager.
     - Site superintendent.
     - Field engineer.
     - Foreman.
     - Equipment operators and laborers.
     - Others as appropriate.
   - Designation of Contractor personnel that will be present at the Site for the duration of the Project.
   - Work Schedule: Proposed workdays and work hours. Include copy of Contractor's initial Progress Schedule, prepared in accordance with Section 01 30 00 Administrative Requirements.
   - List of major construction equipment
   - Site security/property protection procedures.
   - List of major Subcontractors and Suppliers. Include name, role, and contact information for the following:
     - Safety representative.
     - Surveyor.
     - Suppliers and sources of off-site fill and aggregates.
     - Treatment, disposal, and recycling facilities.
     - Others as appropriate.

b) Site Utilization Plan: Site plan showing the proposed location and layout of the following:
   - Temporary facilities (i.e., office trailers, sanitary, first-aid, parking/storage).
   - Temporary marine access and parking areas.
   - Equipment storage and fueling area(s), including on-water fueling approach and controls.
   - Temporary decontamination area(s). Clearly identify location and size of each.
   - Sediment transfer area, as appropriate. Clearly identify location and size.
   - Vessel mooring area and shipping route to off-site processing facility.
   - Vessel/equipment refueling locations and procedures.

c) Comprehensive Work Plan: Written description of the general sequence and scope of the following:
   - Mobilization and site preparation.
   - Site access controls and security.
   - Pre-, mid- and post-construction bathymetric and construction surveys.
   - Turbidity and sheen controls.
   - Water quality controls.
   - Noise controls.
   - Odor, vapor, and dust control.
   - Erosion and sediment control.
   - Utility clearance, mark-out, and verification.
   - Soil excavation.
   - Barrier wall installation.
   - NAPL collection system installation.
   - Debris Removal.
   - Sediment dredging.
   - Construction waste management.
   - Backfill.
   - Decontamination.

- Demobilization.
- Supporting Plans including:
  - Security Plan (Part 1.02B of this Section)
  - Hazardous Material Communication Plan (Section 01 35 29 Contractor's Health and Safety Plan)
  - Emergency/Spill Response Plan (Section 01 35 29 Contractor's Health and Safety Plan)
  - Turbidity and Sheen Control Plan (in accordance with the requirements presented in Section 01 50 00 Temporary Facilities and Controls)
  - Water Quality Control Plan (in accordance with the requirements presented in Section 01 50 00 Temporary Facilities and Controls)
  - Noise Control Plan (in accordance with the requirements presented in Section 01 50 00 Temporary Facilities and Controls)
  - Odor, Dust and Vapor Control Plan ((in accordance with the requirements presented in Section 01 50 00 Temporary Facilities and Controls)
  - Pollution Control Plan (in accordance with the requirements presented in Section 01 50 00 Temporary Facilities and Controls)
  - Waste Management Plan (in accordance with the requirements presented in Section 01 70 00 Execution and Closeout Requirements)
  - Survey Control Plan (in accordance with the requirements presented in Section 01 70 00 Execution and Closeout Requirements)
  - Monitoring Plan and Installation Plan (in accordance with the requirements presented in Section 31 00 00 Earthwork)
  - NAPL Barrier Wall Installation Plan (in accordance with the requirements presented in Section 35 31 16 – NAPL Barrier Wall and Collection System)
  - Dive and Torching Plan (in accordance with the requirements presented in Section 35 31 16 – NAPL Barrier Wall and Collection System)
  - Access and Site Preparation Plan: (in accordance with the requirements presented in Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal)
  - Debris Removal and Management Plan (in accordance with the requirements presented in Section 35 20 23 Mechanical Dredging, Backfill and Material Handling and Disposal)
  - Sediment Dredging and Backfill Plan (in accordance with the requirements presented in Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal)
  - Waste Management Plan (in accordance with the requirements presented in Sections 01 70 00 Execution and Closeout Requirements and 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal)

  Note: Supporting Plans can be integrated within the text of the Project Operations Plan

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b. Submit POP to Engineer 30 days prior to Contractor's scheduled mobilization to the Site.

1.03 CONTRACTOR RESPONSIBILITIES

A. Site Security and Access
   1. Remove temporary site controls following completion of the Work. Restore in-kind any disturbance resulting from the construction of temporary controls.
   2. Maintain Contractor's health and safety personnel on-site presence during the Work.
   3. Restrict access of persons and vehicles onto the site in accordance with the Contractor's Security Plan. Allow only authorized persons to enter the site.
   4. Maintain all materials, tools and equipment in a locked container when not in use.
   5. Maintain the security program throughout construction until the Owner's final acceptance of work precludes the need for the Contractor's security program.
   6. Repair all damage to property arising from failure to provide adequate security, at no additional cost to the Owner.
   7. Report any theft or vandalism to the Owner and document the incident in the Daily Construction Report. Required details include who, what, where, when, why and corrective measures implemented to prevent future occurrences. The Contractor will make no claim against the Owner or adjacent property owner(s) for damage, due to Contractor negligence, resulting from trespass and shall replace/repair damage at no additional cost to the Owner. If Contractor personnel encounter trespassers, immediately notify the Owner.

PART 2– PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PROJECT SIGN

A. Site Security and Access
   1. Place all required project signage as required under Section 01 50 00 Temporary Facilities and Controls.

3.02 SECURITY MEASURES

A. Site Security and Access
   1. Only personnel in the employment of the Owner or its Contractors, Subcontractors, Suppliers, NYSDEC, and their respective representatives shall be allowed within the Project Work Limits. No other personnel are allowed without the express written approval of the Owner.

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
   1. This technical specification includes Contractor requirements for conducting the following
      a. Project Coordination
         1) Coordinating remedial construction operations to facilitate completion of the Work.
      b. Pre-Construction Conference
         1) Attending a pre-construction conference and being prepared to discuss all items on the agenda.
         2) The Engineer will distribute an agenda prior to the conference, preside at conference, and prepare and distribute pre-construction conference notes to all conference participants and others as requested.
      c. Progress Meetings
         1) Attending regular progress meetings throughout the Project and being prepared to discuss in detail all agenda items.
         2) Engineer will preside at progress meetings and will prepare and distribute progress meeting notes to all meeting participants and others as requested.
      d. Construction Progress Schedule
         1) Preparing, submitting, maintaining, and updating Construction Progress Schedules in accordance with this Section, and the Owner's Supplemental Construction Contract Requirements (SCCR).
         2) The Owner's acceptance of the Progress Schedule, and comments or opinions concerning the activities in the Progress Schedule will not control the Contractor's independent judgment relative to the means, methods, techniques, sequences, and procedures of construction. The Contractor is solely responsible for complying with the Contract Duration.
         3) If the Progress Schedule reflects completion date(s) different than the Contract Duration, the Contract Duration are not thereby voided, nullified, or affected. The Contract Duration govern. Where the Progress Schedule reflects completion date(s) that are earlier than the Contract Duration, Owner may accept such Progress Schedule with the Contractor to specifically understand that no Claim for additional Contract Duration or additions to the Contract Price will be brought against Owner resulting from the Contractor's failure to complete the work by the earlier date(s) indicated on the accepted Progress Schedule.
      e. Construction Progress Reporting
         1) Preparing and submitting construction progress reports in accordance with this Section.
         2) Construction progress reports include:
            a) Daily construction reports.
            b) Field condition reports.

B. Related Sections
   1. Section 01 11 00 – Summary of Work
   2. Section 01 33 00 – Submittal Procedures

3. Section 01 35 29 – Contractor Health and Safety Plan

1.02 COORDINATION

A. Project Coordination
   1. Coordinate the Work with whom coordination is necessary (whether hired by the Contractor, Owner, or others) including quality assurance testing companies, Contractor, Subcontractors, Suppliers, and others, in accordance with this Section, to complete the Work in accordance with the Contract Documents.
   2. Cooperate with other contractors, utility service companies, Owner's employees working at the Site, Metro North Railroad, and other entities working at the Site, in accordance with Specification Section 01 11 00 – Summary of Work.
   3. Coordinate with Metro North Railroad during project execution (Owner will coordinate access agreement – as necessary).
   4. Owner will coordinate with all other parties including, but not limited to NYSDEC, private property owners, and the City of Peekskill.
   5. Coordinate construction operations included in different Sections to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
      a. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
      b. Coordinate installation of construction components to efficiently and effectively complete the remedial construction.
      c. Make adequate provisions to accommodate items scheduled for later installation.
   6. Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
      a. Preparing Contractor's Progress Schedule.
      b. Installing and removing temporary utilities, facilities, and controls.
      c. Delivering and processing submittals.
      d. Preparing for and attending progress meetings.
      e. Conducting startup and adjustment of systems.
      f. Completing project closeout activities.
   7. Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.
   8. Maintain sufficient competent personnel, drafting and CADD equipment (as necessary), and supplies at the Site for preparing layout drawings, coordination drawings, and record documents. With the Contract Documents and Shop Drawings, use such coordination drawings as tools for coordinating the Work of various trades. Where such coordination drawings are to be prepared by Subcontractors, ensure that each Subcontractor maintains required personnel and facilities at the Site.

B. Pre-Construction Conference
   1. Representatives present for each entity shall be qualified and authorized to act on that entity's behalf.
   2. Attendance:
      a. Contractor:
         1) Project manager
         2) Field Engineer
         3) Site superintendent

4) Safety representative
b. Owner.
c. Engineer.
d. New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH), if available.
e. Others as requested by Owner, Contractor, or Engineer.

C. Progress Meetings
1. Representatives present for each entity shall be qualified and authorized to act on that entity's behalf.
2. Attendance:
a. Contractor:
1) Project manager.
2) Contractor's Engineer.
3) Site superintendent.
4) Safety representative.
5) Representatives of other Subcontractors and Suppliers when needed for the discussion of a pertinent agenda item.
b. Owner.
1) Project Manager.
2) Chief Construction Inspector.
3) Construction Inspector.
c. Engineer.
1) Project Manager.
2) Engineer of Record.
3) On-site Observer.
4) Air Monitoring Technician.
d. New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH), if available.

1.03 SUBMITTALS

A. Construction Progress Schedule
1. Informational Submittals:
a. Preliminary Progress Schedule: Submit preliminary Progress Schedule in accordance with this Section.
b. Initial Progress Schedule: After making revisions in accordance with Owner's/Engineer's comments on the preliminary Progress Schedule, submit initial Progress Schedule in accordance with this Section.
c. Progress Schedule Updates:
1) Submit updated Progress Schedule at each progress meeting. Bring to meeting a minimum of 10 copies.
2) Submit each updated Progress Schedule with letter of transmittal complying with requirements of Specification Section 01 33 00 – Submittal Procedures and specifically indicating the following:
a) List activities and dates that have changed since the previous Progress Schedule submittal.
b) Discussion of problems causing delays, anticipated duration of delays, and proposed countermeasures.
c) Completed activities, if any, and the anticipated and actual durations of each.
d. If the Progress Schedule remains unchanged from one progress meeting to the next, submit a written statement to that effect.

e. Look-Ahead Schedules: Submit a two-week look-ahead schedule at each progress meeting.
f. Recovery Schedules: Submit in accordance with this Section

B. Construction Progress Reporting
1. Informational Submittals:
a. Daily Construction Reports: Submit in accordance with Part 1.05 B.1. of this Section.
b. Daily Performance Logs: Submit in accordance with the Owner's Supplemental Construction Contract Requirements (SCCR)
c. Field Condition Reports: Submit in accordance with Part 1.05 C. 1. of this Section.

1.04 PRELIMINARY AGENDA

A. Pre-Construction Conference
1. Safety Moment
2. Procedural and Administrative:
a. Personnel and Teams:
1) Designation of roles and responsible personnel.
2) Limitations of authority of personnel, including personnel who will sign Contract modifications and make binding decisions.
3) List of proposed Subcontractors and Suppliers.
4) Authorities having jurisdiction.
b. Procedures for communication and correspondence.
c. Copies of Contract Documents and availability.
d. The Work and Scheduling:
1) Scope of Work.
2) Contract Times, including Milestones (if any).
3) Phasing and sequencing.
4) Preliminary Progress Schedule.
5) Critical path activities.
6) Working hours.
e. Safety:
1) Responsibility for safety.
2) Designation of Contractor's safety representative.
3) Emergency procedures and accident reporting.
4) Emergency contact information.
5) Impact of Project on public safety.
f. Permits.
g. Coordination:
1) Project coordination.
2) Progress meetings.
3) Products and Submittals:
4) Preliminary Schedule of Submittals.
5) Shop Drawings, Samples, and other submittals.
6) Product options, "or equals", and substitutions.
h. Contract Modification Procedures:
1) Requests for interpretation.
2) Clarification notices.
3) Field Orders.
4) Proposal requests.
5) Change Order proposals.
6) Work Change Directives.
7) Change Orders.

i. Payment:
    1) Progress payment procedures.
    2) Taxes.
    3) Retainage.
j. Testing and inspections.
k. Record documents.
l. Preliminary Discussion of Contract Closeout:
    1) Procedures for Substantial Completion.
    2) Contract closeout requirements.
    3) Correction period.
    4) Duration of bonds and insurance.

3. Site Mobilization:
    a. Field offices and staging areas.
    b. Temporary facilities and utilities.
    c. Site access and parking.
    d. Maintenance and protection of traffic.
    e. Use of premises.
    f. Protection of existing property.
    g. Security.
    h. Utility clearance
    i. Temporary Controls:
        1) Erosion and sediment control.
        2) Storm water control.
        3) Turbidity control.
        4) Pollution control.
        5) Odor, vapor, and dust control.
        6) Noise control.
    j. Temporary fencing.
    k. Facilities (office trailers, sanitary, health and safety).
    l. Storage of materials and equipment.
    m. Reference points and benchmarks; surveys and layouts.
    n. Site maintenance and housekeeping during the Project, including trash and debris cleaning and removal.
    o. Restoration.
4. General discussion and questions.
5. Next meeting.

B. Progress Meetings
1. Previous progress meeting notes review, comment, and amendment (if required).
2. Safety and safe work practices.
3. Community air monitoring results since previous progress meeting.
4. Progress since previous progress meeting.
5. Planned progress through next progress meeting.
6. Progress Schedule Review:
    a. Contract Times, including Milestones (if any).
    b. Critical path.
    c. Schedules for fabrication and delivery of materials and equipment.
    d. Issues potentially affecting the Contract Times, including Milestones (if any).
    e. Corrective measures, if required, to achieve Contract Times, including Milestones (if any).
7. Submittals:

a. Critical submittals status.
b. Schedule of Submittals and Engineer's submittal log review.
8. Field observations, problems, and conflicts.
9. Quality standards, testing, and inspections.
10. Coordination between parties.
11. Site management issues, including access, security, temporary controls, maintenance and protection of traffic, and housekeeping.
12. Permits.
13. Punch list status, as applicable.
14. Other business.

1.05 REPORT AND SCHEDULE FORMAT AND CONTENT

A. Construction Progress Schedule
1. Format:
a. Type: Gantt chart prepared using Microsoft Project 2007 or later edition.
b. Data Format: Submit as Microsoft Projects and in Portable Document Format (.pdf) in accordance with Specification Section 01 33 00 – Submittal Procedures.
c. Submit and maintain on site, a hardcopy of the schedule printed on a format of suitable size. The .pdf version must be formatted to print on 11x17-inch paper.
d. Time Scale: Indicate first date of each work week.
e. Organization:
1) Group deliveries of materials and equipment into a separate sub-schedule that is part of the Progress Schedule.
2) Group construction into a separate sub-schedule (that is part of the Progress Schedule) by activity.
3) Group construction, by activity, into a separate sub-schedule that is part of the Progress Schedule.
4) Group critical activities that dictate the rate of progress (the "critical path") into a separate sub-schedule that is part of the Progress Schedule. Clearly indicate the critical path on the Progress Schedule.
5) Organize each sub-schedule by Specification Section number.
f. Activity Designations: Indicate title and related Specification Section number or payment item number.
2. Content: Progress Schedules must show the baseline schedule and current schedule and indicate the following:
a. At a minimum, include the following major work items, with appropriate subtasks included as necessary, in the general sequence listed below:
1) Mobilization
2) Site Preparation
3) Debris Removal
4) NAPL Barrier Wall
5) NAPL Collection Sumps
6) Geotechnical Monitoring
7) Sediment Dredging
8) Dredged Materials Handling and Disposal
9) Backfilling/Capping
10) Site Restoration
11) Demobilization
b. Progress Schedules must also indicate the following:
1) Shop-testing dates.
2) Material and equipment delivery dates.
3) Beginning and completion dates for each Work phase by activity and by trade.

4) Contract Times, planned Milestone completion date(s), Substantial Completion, and readiness for final payment.
5) Manpower for each item and percent complete for each task.

3. Coordinate the Progress Schedule with the Schedule of Submittals.

B. Construction Progress Reporting
1. Prepare Daily Construction Reports throughout the Project. Include in each report, at a minimum, the following:
a. Contractor's name.
b. Owner's name.
c. Project name.
d. Site name and location.
e. Date and day of the week.
f. High and low temperatures and general weather conditions.
g. Number of Contractor employees at the Site.
h. Name of subcontractor(s) and number of employees at the Site for each subcontractor.
i. Breakdown of employees by trades.
j. Major construction equipment used.
k. Material and equipment deliveries.
l. Waste shipments.
m. Meter readings and similar recordings.
n. Work performed, including field quality control measures and testing.
o. Location of areas in which construction was performed.
p. Major equipment and materials installed as part of the Work.
q. Services connected and disconnected.
r. Equipment or system tests and startups.
s. Stoppages, delays, shortages, and losses.
t. Accidents. Comply with accident reporting requirements of Section 01 35 29 – Contractor Health and Safety Plan.
u. Emergency procedures.
v. Field meetings and significant decisions.
w. Orders and requests of authorities having jurisdiction.
x. Change Orders received and implemented.
y. Work Change Directives received and implemented.
z. Field Orders received and implemented.
aa. Other instructions received from Owner or Engineer.

2. Submit daily construction reports to Owner and Engineer by 9:00 a.m. the next working day after the day covered in the associated report. Daily report must be signed by responsible member of Contractor's staff, such as Contractor's project manager or superintendent, or foreman designated by Contractor as having authority to sign daily reports.

C. Field Condition Reports
1. Field Condition Reporting
a. Immediately upon discovery of a difference between field conditions and the Contract Documents, prepare and submit to the Owner and Engineer a detailed report. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 2– PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
   1. Preparing and submitting Contractor submittals, including plans, shop drawings, product data, product or material samples, mock-ups, and schedules. Detailed and specific submittal requirements are provided elsewhere in the Specifications an example submittal log form is included with this Section.
   2. Providing submittals in advance (as stipulated in this Section) of the need for the material, equipment, or procedure (as applicable) in the Work and with ample time required for material or equipment delivery and to implement procedures following Owner's and/or Engineer's review or acceptance of the associated submittal. Assume a minimum of 10 working days for Owner's and Engineer's review of each submittal.
   3. Contractor is responsible for:
      a. Confirming and correcting dimensions at the site.
      b. Obtaining and providing information pertaining solely to the fabrication processes and to techniques of construction.
      c. Coordinating the work of all trades.
      d. The Engineer will maintain a submittal log documenting submittal status.
   4. Contractor's signature of submittal stamp and letter of transmittal will be Contractor's representation that the Contractor has met its obligations under the Contract Documents relative to that submittal.
   5. Providing submittals in accordance with this Section and the Owner's Supplemental Construction Contract Requirements (SCCR).

B. Samples:
   1. Conform each sample submittal to the Section in which the sample is specified.
   2. Furnish, at the same time, samples and submittals that are related to the same unit of Work or Specification Section. Neither the Engineer nor the Owner will review submittals without associated samples and will not review samples without associated submittals.
   3. Samples must clearly illustrate functional characteristics of product, all related parts and attachments, and full range of color, texture, pattern, and material.

C. Prepare and transmit each submittal to the Engineer and the Owner a minimum of 10 working days in advance of the Contractor's intended performance of the related Work or other applicable activities, or within the time specified in the individual Work of other related Sections, or with sufficient time so that Work will not be delayed by processing times (including rejections and resubmittals, if required); coordination with other submittals; testing, purchasing, fabrication, delivery of material or equipment; and similar sequenced activities. The Owner/Engineer will not be liable for any expense and/or delay resulting from the Contractor's failure to provide submittals in a timely manner.

D. The Owner will forward select submittals to NYSDEC for review, as requested.

1.02 TYPES OF SUBMITTALS

A. Submittals are classified as Action Submittals, Informational Submittals, Closeout Submittals, and Maintenance Material Submittals. The type of each required submittal is designated in the

respective Specification Sections. When the type of submittal is not specified in the associated Specification Section, the submittal will be classified as follows:

1. Action Submittals include, but are not limited to:
   a. Shop Drawings.
   b. Product data.
   c. Delegated design submittals, which include documents prepared, sealed, and signed by a design professional retained by the Contractor, Subcontractor, or Supplier for materials and equipment to be incorporated into the completed Work. Delegated design submittals do not include submittals related to temporary construction unless specified otherwise in the related Specification Section. Delegated design submittals include design drawings, design data including calculations, specifications, certifications, and other submittals prepared by such design professional.
   d. Samples.
   e. Testing plans, procedures, and testing limitations.
2. Informational Submittals include, but are not limited to:
   a. Certificates.
   b. Design data not sealed and signed by a design professional retained by the Contractor, Subcontractor, or Supplier.
   c. Pre-construction test and evaluation reports, such as reports on pilot testing, subsurface investigations and similar reports.
   d. Supplier instructions, including installation data, and instructions for handling, starting-up, and troubleshooting.
   e. Source quality control submittals (other than testing plans, procedures, and testing limitations), including results of shop testing.
   f. Field quality control submittals (other than testing plans, procedures, and testing limitations), including results of operating and acceptability tests at the Site.
   g. Supplier reports.
   h. Sustainable design submittals (other than sustainable design closeout documentation).
   i. Special procedure submittals, including health and safety plans and other procedural submittals.
   j. Qualifications statements.
3. Closeout Submittals include:
   a. Maintenance contracts.
   b. Operations and maintenance data.
   c. Bonds, such as maintenance bonds and bonds for a specific product or system.
   d. Warranty documentation.
   e. Record documentation.
   f. Sustainable design closeout documentation.
   g. Software.
4. Maintenance Material Submittals include:
   a. Spare parts.
   b. Extra stock materials.
   c. Tools.
5. When type of submittal is not specified and is not included in the list above, Owner (in consultation with the Engineer) will determine the type of submittal.

B. Not Included in this Section: Administrative and procedural requirements for the following Contractor submittals are covered in the Owner's Supplemental Construction Contract Requirements (SSCR) and other sections of the Contract Documents.:
   1. Requests for interpretations of the Contract Documents.
   2. Field Orders, Work Change Directives, and Change Orders.
   3. Applications for Payment.
   4. Progress Schedules.

5. Progress Reports.
6. Photographic documentation.
7. Reports and documentation required in accordance with applicable permits.
8. Site survey data.

1.03 SUBMITTALS REQUIRED IN THIS SECTION

A. Schedule of Submittals:
   1. Timing:
      a. Provide submittal within time frames specified in the Contract Documents.
      b. Provide updated Schedule of Submittals with each submittal of the updated Progress Schedule.
   2. Content: Requirements for content of preliminary Schedule of Submittals and subsequent submittals of the Schedule of Submittals are identical. Identify on Schedule of Submittals all submittals required in the Contract Documents. Updates of Schedule of Submittals must show scheduled dates and actual dates for completed tasks. Indicate submittals that are on the Project's critical path. Indicate the following for each submittal:
      a. Date by which submittal will be provided to Owner and Engineer.
      b. Whether submittal will be for a substitution or "equal".
      c. Date by which Owner's/Engineer's response is required. At least 10 working days must be allowed from Owner's/Engineer's receipt of each submittal.
      d. For submittals for materials or equipment, date by which material or equipment must be at the Site to avoid delaying the Work and to avoid delaying the work of other contractors.
   3. Prepare Schedule of Submittals using same software, and in same format, specified for Progress Schedules.
   4. Coordinate Schedule of Submittals with the Progress Schedule.
   5. Schedule of Submittals that is not compatible with the Progress Schedule, or that does not indicate submittals on the Project's critical path, or that that places extraordinary demands on Owner for time and resources, is unacceptable. Do not include submittals not required by the Contract Documents.
   6. In preparing Schedule of Submittals:
      a. Identify and accordingly schedule submittals that are expected to have long anticipated review times and submittals that may be subject to review by NYSDEC or other authorities having jurisdiction.

1.04 PROCEDURE FOR SUBMITTALS

A. Submittal Identification System: Use the following submittal identification system, consisting of submittal number and review cycle number.
   1. Submittal number will be a separate and unique number correlating to each individual submittal required. The Contractor must assign a submittal number as follows:
      a. First part of the submittal number must be the applicable Specification Section number, followed by a hyphen.
      b. Second part of the submittal number must be a three-digit number (sequentially numbered from 001 through 999) assigned to each separate and unique submittal provided under the associated Specification Section.
      c. Typical submittal number for the third submittal provided for Section 31 00 00 – Earthwork would be "31 00 00-003".
   2. Review cycle number must be a letter designation indicating the initial submittal or re-submittal associated with each submittal number:
      a. "A" = Initial (first) submittal.
      b. "B" = Second submittal (i.e., first re-submittal).
      c. "C" = Third submittal (i.e., second re-submittal).

3. Typical submittal identification for the second submission (first re-submission) of the third submittal provided for Section 31 00 00 – Earthwork would be “31 00 00-003-B”.

B. Letter of Transmittal for Submittals:
   1. Provide separate letter of transmittal with each submittal. Each submittal will be for one Specification Section.
   2. Each letter of transmittal shall contain the information as required by the Owner’s SCCR.
   3. For submittals with proposed deviations from requirements of the Contract Documents, letter of transmittal must specifically describe each proposed variation.

C. Contractor’s Review and Stamp:
   1. Contractor’s Review: Before transmitting submittals to Owner/Engineer, review submittals to:
      a. Ensure proper coordination of the Work.
      b. Verify that submittal contains sufficient information for Owner/Engineer to determine compliance with the Contract Documents.
   2. Incomplete or inadequate submittals will be returned without review.
   3. Contractor’s Stamp and Signature:
      a. Each submittal provided must bear the Contractor’s stamp of approval and signature, as evidence that submittal has been reviewed by the Contractor and verified as complete and in accordance with the Contract Documents.
      b. Submittals without the Contractor’s stamp and signature will be returned without review.
      c. Contractor’s stamp must contain the following certification statement:

         “*By this submittal, I hereby represent that I have determined and verified all field measurements, field construction criteria, materials, dimensions, catalog numbers, and similar data, and I have checked and coordinated each item with other applicable Shop Drawings and all Project requirements*.”

D. Submittal Marking and Organization:
   1. Mark each page of the submittal, and each individual component submitted, with submittal number and applicable Specification paragraph.
   2. Arrange submittal information in same order as requirements are written in the associated Specification Section.
   3. Each Shop Drawing sheet must have a title block with complete identifying information satisfactory to Owner/Engineer.
   4. Package together submittals for the same Specification Section. Do not provide required information piecemeal.

E. Format of Submittal and Recipients:
   1. Action Submittals and Informational Submittals: Except for Samples, provide Action Submittals and Informational Submittals as electronic files in PDF format. Submit Samples as specified in Part 1.04.E.2 of this Section.
   2. Samples:
      a. Securely label or tag Samples with submittal identification number. Label or tag must include clear space at least three inches by three inches in size for affixing Engineer’s review stamp. Label or tag must not cover, conceal, or alter appearance or features of Sample. Label or tag must not be separated from the Sample.
      b. Submit number of Samples required in Specifications. If number of Samples is not specified in the associated Specification Section, provide at least three identical Samples of each item required for Owner’s/Engineer’s review. Samples will not be returned to the Contractor. If the Contractor requires Sample(s) for Contractor’s use,

notify Owner and Engineer in writing and provide additional Sample(s). Contractor is responsible for furnishing, shipping, and transporting additional Samples.

c. Deliver one Sample to Owner.

3. Closeout Submittals:
   a. Provide the following Closeout Submittals as electronic files in PDF format:
      1) Maintenance contracts.
      2) Operations and maintenance data.
      3) Bonds for specific products or systems.
      4) Warranty documentation.
      5) Sustainable design closeout documentation.
   b. Record Documentation: Submit in accordance with Section 01 70 00 – Execution and Closeout Requirements.
   c. Software: Submit number of copies required in Specification Section where the software is specified. If number of copies is not specified, provide two copies on compact disc in addition to software loaded on to Owner's computer(s) or microprocessor(s).
4. Maintenance Material Submittals: For spare parts, extra stock materials, and tools, submit quantity of items specified in associated Specification Section.

F. Distribution:
   1. Owner/Engineer will distribute each reviewed submittal requiring Owner's/Engineer's written response as electronic file in PDF format.
   2. Distribute hardcopy reproductions of reviewed submittals, where required, to the job site file and elsewhere, as directed by the Owner/Engineer. Number of hardcopies will be as directed by Owner/Engineer but will not exceed six.

G. Resubmittals: Resubmittal requirements are provided in Article 1.05 of this Section.

H. Submittal Log:
   1. Maintain a log of required submittals using the form included with this Section. Updated submittal log will be provided to the Engineer weekly or upon request.
   2. Review submittal log and status of each submittal with Owner on a weekly or more frequent basis.
   3. Coordinate updates to Schedule of Submittals with Owner's/Engineer's submittal log updates.

1.05 SUBMITTAL REVIEW

A. Timing: Owner's (and Engineer's) review will conform to timing accepted by Owner (in consultation with the Engineer) in the accepted Schedule of Submittals.

B. Results of Review:
   1. Action Submittals: Each submittal will be given one of the following dispositions:
      a. Reviewed: Upon return of submittal marked "Reviewed", order, ship, or fabricate materials and equipment included in the submittal (pending Owner's/Engineer's review or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents.
      b. Reviewed and Noted: Upon return of submittal marked "Reviewed and Noted", order, ship, or fabricate materials and equipment included in the submittal (pending Owner's/Engineer's review or acceptance, as applicable, of source quality control submittals) or otherwise proceed with the Work in accordance with the submittal and the Contract Documents, provided it is in accordance with corrections indicated.
      c. Revise and Resubmit: Upon return of submittal marked "Revise and Resubmit", make the corrections indicated and re-submit to Owner/Engineer for review.

d. Rejected: This disposition indicates material or equipment that cannot be reviewed. Upon return of submittal marked "Rejected", repeat initial submittal procedure utilizing reviewable material or equipment.

2. Informational Submittals:
   a. Each submittal will be given one of the following dispositions:
      1) Accepted: Information included in submittal conforms to the applicable requirements of the Contract Documents, and is acceptable. No further action by the Contractor is required relative to this submittal, and the Work covered by the submittal may proceed, and products with submittals with this disposition may be shipped or operated, as applicable.
      2) Not Accepted: Submittal does not conform to applicable requirements of the Contract Documents and is not acceptable. Revise submittal and re-submit to indicate acceptability and conformance with the Contract Documents.
   b. The following types of Informational Submittals, when acceptable to Owner/Engineer, will not receive a written response from Owner/Engineer. Disposition as "Accepted" will be recorded in the submittal log. When submittals of the following are not acceptable, Owner will provide written response to the Contractor:
      1) Safety data sheets.
      2) Manifests and other shipping documents.
      3) Delivery tickets.
      4) Compaction testing reports.
      5) Concrete testing reports.
      6) Manufacturer's instructions.
3. Closeout Submittals: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Closeout Submittals will not receive a written response from the Owner/Contractor. The Engineer will include "Accepted" in their submittal log. When Closeout Submittal is not acceptable, the Owner/Engineer will provide written response to the Contractor.
4. Maintenance Material Submittals: Dispositions and meanings are the same as specified for Informational Submittals. When acceptable, Maintenance Material Submittals will not receive a written response from the Owner. Disposition as "Accepted" will be recorded in the submittal log. When Maintenance Material Submittal is not acceptable, the Owner/Engineer will provide written response to the Contractor, and the Contractor is responsible for costs associated with transporting and handling of maintenance materials until compliance with the Contract Documents is achieved.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 ATTACHMENTS

A. The form listed below, is part of this Specification Section:
   1. Attachment A: Example Submittal Log form (2 pages).

END OF SECTION

SECTION 01 35 29

CONTRACTOR HEALTH AND SAFETY PLAN

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
1. This technical specification includes Contractor requirements for conducting the following:
   a. Contactor's Health and Safety Plan:
      1) Preparing and maintaining a written, Project-specific Contractor Health and Safety Plan (HASP), and conducting all construction activities in a safe manner that avoids:
         a) Injuries to Contractor employees, Subcontractor employees, and other persons with an interest at or near the Site.
         b) Employee exposures to health hazards above occupational limits established respectively by the Occupational Safety and Health Administration (OSHA), American Conference of Governmental Industrial Hygienists (ACGIH), and Nuclear Regulatory Commission (NRC), as applicable.
         c) Exposure of the public and Owner's employees to air contaminants above levels established for public exposure by USEPA, NRC, NYSDEC, NYSDOH, and other authorities having jurisdiction at the Site.
         d) Significant increases in concentrations of contaminants in soil, water, or sediment near the Site.
         e) Violations of the Occupational Safety and Health Act, or other Laws or Regulations.
   b. Environmental Procedures for Hazardous Materials:
      1) Developing, implementing, and maintaining a Hazardous Materials Management Program (HMMP) throughout the Project, in accordance with Laws and Regulations. The HMMP must include:
         a) Hazardous Materials Brought to Site by the Contractor: Procedures for transporting, handling, storing, labeling, using, and disposing hazardous materials in accordance with Laws and Regulations, and this Section.
         b) Hazardous Material Generated by the Contractor:
            1. Hazardous Material must be properly handled, stored, labeled, transported, and disposed of by the Contractor in accordance with Laws and Regulations, and this Section.
            2. If the Contractor will generate or has generated Hazardous Material at the Site, obtain Owner's United States Environmental Protection Agency (USEPA) identification number listing Owner's name and address of the Site as generator of the Hazardous Material.
            3. Contractor will be responsible for identifying, characterizing, profiling, transporting, and disposing of Hazardous Material generated by the Contractor.
         c) Paying fines or civil penalties levied against Owner for violations committed at the Site by the Contractor, and costs to Owner (if any) associated with cleanup of Hazardous Materials.

1.02 LAWS AND REGULATIONS

A. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
   1. Interests of Owner are to avoid accidental spills and emissions, Site contamination, and injury of Site personnel.
   2. When Owner is aware of suspected violations, Owner will notify the Contractor, and authorities having jurisdiction if Owner reasonably concludes that doing so is required by Laws or Regulations.
   3. Laws and Regulations applying to the Work under this Section include, but are not limited to, the following:
      a. 29 CFR 1904, Recording and Reporting Occupational Injuries and Illnesses.
      b. 29 CFR 1910, Occupational Safety and Health Standards.
      c. 29 CFR 1926, Safety and Health Regulations for Construction.
      d. 40 CFR 261.3, 264, and 265, Resource Conservation and Recovery Act (RCRA).
      e. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
      f. 6 NYCRR 364, Waste Transporter Permits.
      g. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
      h. 6 NYCRR 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.
      i. 6 NYCRR 375, Environmental Remediation Programs.
      j. 12 NYCRR 23, Protection in Construction, Demolition, and Excavation Operations.
      k. 12 NYCRR 57, High Voltage Proximity.
      l. 12 NYCRR 59, Workplace Safety and Loss Prevention Program.
      m. 12 NYCRR 61, Occupational Licensing and Certification.
      n. 16 NYCRR 753, Protection of Underground Facilities.
      o. 17 NYCRR 32, Oil Spill Prevention and Control – Actions to be Taken in Case of Discharge.

B. Enforcement of Laws and Regulations:
   1. Interests of Owner are that accidental spills and emissions, Site contamination, and injury of personnel at the Site are avoided.
   2. When Owner is aware of suspected violations, Owner will notify Contractor, and authorities having jurisdiction if Owner reasonably concludes that doing so is required by Laws or Regulations.

1.03 DEFINITIONS

A. The following terms are defined for this Section and supplement the terms defined in the General Conditions:
   1. Hazardous Material: Material, whether solid, semi-solid, liquid, or gas, that, if not stored or used properly, may cause harm or injury to persons through inhalation, ingestion, absorption or injection, or that may negatively impact the environment through use or discharge of the material on the ground, in water (including groundwater), or to the air. Hazardous Material includes, but is not limited to, chemicals, Asbestos, Hazardous Waste, PCBs, Petroleum, Radioactive Material, and material that is or becomes listed, regulated, or addressed pursuant to the following:
      a. Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code (USC) §§9601 et seq. (“CERCLA”).
      b. Hazardous Materials Transportation Act, 49 USC §§1801 et seq.
      c. Resource Conservation and Recovery Act, 42 USC §§6901 et seq. (“RCRA”).
      d. Toxic Substances Control Act, 15 USC §§2601 et seq.
      e. Clean Water Act, 33 USC §§1251 et seq.
      f. Clean Air Act, 42 USC §§7401 et seq.

g. Any other Law or Regulation regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

1.04 QUALITY ASSURANCE

A. Contractor Health and Safety Plan
   1. Qualifications:
      a. HASP Preparer:
         1) Utilize a certified industrial hygienist, accredited by the American Board of Industrial Hygiene, or safety professional certified by the Board of Certified Safety Professionals, to prepare or supervise HASP preparation.
      b. Safety Representative:
         1) Retain the services of a fulltime, on-site, independent (or dedicated Contractor employee demonstrated H&S experience), safety industry professional to manage, oversee, and enforce the Contractor's health and safety program, and ensure compliance with HASP and applicable Laws and Regulations during remedial construction.
         2) The Contractor's safety representative must have a minimum of five years' direct construction safety experience and appropriate training to supervise Hazardous Waste operations and emergency response (HAZWOPER) activities.
         3) The Contractor's safety representative must always be present at the Site when Work is being performed and must be dedicated solely to the supervision of the Contractor's health and safety program.
         4) Responsibilities include, but are not necessarily limited to, the following:
            a) Supervising HASP implementation.
            b) Providing health and safety orientation training to the Contractor's employees, subcontractors, other on-site personnel, and visitors.
            c) Attending pre-construction conference, progress meetings, and other Project meetings, as required, to discuss potential safety issues and required mitigation measures.
            d) Preparing and maintaining health and safety records and statistics.
            e) Leading and documenting daily job safety briefings.
            f) Preparing and submitting accident reports in accordance with Article 3.01 of this Section.
            g) Leading accident investigations on the Contractor's behalf.
            h) Preparing and submitting daily health and safety field reports in accordance with Article 3.02 of this Section.

1.05 HAZARDOUS MATERIALS MANAGEMENT

A. Environmental Procedures for Hazardous Materials
   1. Obtain Owner's acceptance before bringing each Hazardous Material to the Site.
   2. *Hazardous Materials Communication Plan*: Develop a Hazardous Materials Communication Plan. At a minimum, maintain at the Site two notebooks containing the following:
      a. Inventory of Hazardous Materials, including all chemicals.
      b. Current (dated within the past two years) SDSs for all materials being used to accomplish the Work, whether or not defined as Hazardous Material in this Section. Keep one notebook in the Contractor's field office at the Site; keep a second notebook at a location acceptable to Owner and Engineer. Keep notebooks up to date as materials are brought to and removed from the Site.

3. *Emergency/Spill Response Plan*: Develop, implement, and maintain an Emergency/Spill Response Plan, for each Hazardous Material or each class/group of Hazardous Materials as applicable. The Emergency/Spill Response Plan must include, at a minimum, the following:
    a. Description of equipment and materials available at the Site to contain a spill of, or respond to a hazardous waste-related emergency.
    b. Procedures for notifying, and list of emergency contact information for:
        1) Authorities having jurisdiction.
        2) Emergency responders.
        3) Contractor's project manager, Site superintendent, safety representative, and foreman.
        4) Owner and Engineer.
        5) Other entities as required.
    c. Response coordination procedures between Contractor, Owner, and others as appropriate.
    d. Site plan showing proposed location of Hazardous Materials storage area, spill containment/response equipment and materials location, and storm water drainage inlet location(s) and drainage routes.
    e. Description of Hazardous Material handling and spill response training provided to the Contractor's and Subcontractors' employees, in accordance with 29 CFR 1926.21(b) and other Laws and Regulations.
4. Hazardous Materials and Non-Hazardous Materials Storage:
    a. Hazardous Materials containers must bear applicable hazard diamond(s).
    b. Container Labeling:
        1) Properly label each consumable materials container, whether or not classified as Hazardous Materials under this Section.
        2) Stencil Contractor's name and, as applicable, Subcontractor's name, on each vessel containing Hazardous Material and, for non-Hazardous Materials, on each container over five-gallon capacity. Containers must bear securely attached label clearly identifying contents. Label containers that are filled from larger containers.
        3) If Owner or Engineer becomes aware of unlabeled containers at the Site, Owner will notify the Contractor. Properly label container(s) within one hour of receipt of notification or remove container from the Site.
    c. To greatest extent possible, store Hazardous Materials off-site until required for use in the Work.
5. Hazardous Materials Storage Area:
    a. Maintain designated storage area for Hazardous Materials that includes secondary containment. Storage area must include barriers to prevent vehicles from colliding with storage containers and must include protection from environmental factors such as weather.
    b. Provide signage in accordance with Laws and Regulations, clearly identifying the Hazardous Materials storage area.
6. Contractor's safety representative must meet at least monthly with Owner and Engineer to review the Contractor's HMMP documents and procedures, and inspect storage areas and the Site in general, to verify compliance with this Section.

1.06 SUBMITTALS

A. Contractor Health and Safety Plan
    1. Informational Submittals:
        a. HASP: Submit in accordance with Article 1.07 of this Section.
        b. Qualifications Statements:

1) HASP Preparer: Submit name and qualifications of certified industrial hygienist or safety professional, including summary of experience and copy of valid certifications.
2) Safety Representative: Submit name and qualifications of safety representative, including summary of experience, training received, and copy of valid certifications applicable to the Project.

c. Reports:
1) Accident Reports: Submit in accordance with Article 3.01 of this Section.
2) Daily Health and Safety Field Reports: Submit in accordance with Article 3.02 of this Section.

d. Submit in accordance with Article 1.08 of this Section, the following valid training certificates:
1) Initial 40-hour HAZWOPER training.
2) Initial 24-hour HAZWOPER training.
3) Eight-hour HAZWOPER supervisor training.
4) Annual eight-hour HAZWOPER refresher training.

B. Environmental Procedures for Hazardous Materials
1. Informational Submittals:
a. Hazardous Materials (including Chemicals) Proposed for Use at the Site: Submit current (dated within the past two years) safety data sheets (SDSs) in accordance with 29 CFR 1910.1200 (OSHA Hazard Communication Standard), manufacturer, Supplier (if different than manufacturer), container size(s) and number of containers proposed to be at the Site, minimum and maximum volume of material intended to be stored at the Site, and description of process or procedures in which Hazardous Material will be used. Furnish information in sufficient time to obtain Owner's acceptance no later than at least three days before bringing Hazardous Material to the Site.
b. Hazardous Material Generated at the Site: Submit for each Hazardous Material generated at the Site: identification number, analysis results, and number and size of storage containers at the Site. Furnish information not less than three days after the Contractor's receipt of analytical results.
c. Permits: Submit copies of permits for storing, handling, using, transporting, and disposing of Hazardous Materials, obtained from authorities having jurisdiction.
d. Other Documents required for the HMMP: Submit requested documents within three days of the Contractor's receipt of request. HMMP documents may include:
1) Hazardous Materials Communications Plan (described in Part 1.05 A)
2) Emergency/Spill Response Plan (described in Part 1.05 A)

1.07 CONTRACTOR HASP

A. Contractor Health and Safety Plan
1. General:
a. Each employer working on the Project must develop and implement a written HASP for its employees involved in Hazardous Waste operations, or work activities will be completed in accordance with the Contractor HASP (if it appropriately covers health and safety requirements for the specific work in question). Contractor HASP must include procedures that will be used to ensure the safe handling of Hazardous Waste during excavating, loading, and transporting activities.
b. Comply with 29 CFR 1904, 29 CFR 1910, 29 CFR 1926, 12 NYCRR 23, 12 NYCRR 56, 12 NYCRR 57, 12 NYCRR 59, 12 NYCRR 61, 17 NYCRR 32, and other Laws and Regulations.

c. Include in HASP requirements for complying with Owner's health and safety requirements (i.e., "Rules We Live By" and Corporate Employee's Health & Safety Procedures (CEHSP) Checklist 11.03) and site-specific hazard/emergency response plans, if any.
d. HASP must be kept at the Work Area, must address safety and health hazards of each phase of operations of the Project, and must include requirements and procedures for employee protection.

2. HASP Contents: HASP must address and include the following:
   a. Organizational Structure:
      1) Identification of on-site personnel required to adhere to the HASP.
      2) Specific chain of command and overall responsibilities of supervisors and employees. Include the following:
         a) Designation of general supervisor who has responsibility and authority to direct all Hazardous Waste operations.
         b) Name of Project safety representative who has responsibility and authority to implement and modify the HASP and verify compliance.
         c) Other personnel required for Hazardous Waste operations for the Project and emergency response, and general functions and responsibilities of each.
         d) Lines of authority, responsibility, and communication.
      3) Review and update organizational structure as necessary to reflect current status of Site operations and personnel.
   b. Site description, background, and scope of work.
   c. Safety and health risk or hazard analysis, and planned hazard controls, for each task and operation required to complete the Project.
   d. Site control measures, including:
      1) Preventing trespassing.
      2) Preventing unqualified or unprotected workers from entering restricted areas.
      3) Preventing the "tracking" of contaminants out of the Work Area.
      4) Maintaining a log of employees and visitors to the Work Areas.
      5) Delineating exclusion, contamination reduction, and support zones.
      6) Locating personnel and equipment decontamination zones.
      7) Communicating routes of escape and gathering points.
   e. Training Program:
      1) Initial training requirements for Project workers and supervisors.
      2) Exceptions to initial training requirements.
      3) Site briefings for visitors and workers.
      4) Refresher training requirements.
      5) Certification of training for all Contractor and subcontractor employees assigned to the Project.
   f. Medical Surveillance Program:
      1) Provisions of the Project medical surveillance program.
      2) Communication protocols between the Project personnel, physicians, and workers.
      3) Medical recordkeeping procedures.
      4) Certification of medical clearance for all Contractor and subcontractor employees assigned to the Project.
   g. Personal Protective Equipment (PPE):
      1) PPE selection criteria.
      2) Site- and task-specific PPE ensembles.
      3) Training in the use of PPE.
      4) Respiratory protection.
      5) Hearing conservation.
      6) PPE maintenance and storage.

h. Exposure Monitoring Program:
    1) Monitoring procedures to detect the presence of hazardous substances.
    2) Monitoring procedures to determine worker exposures to hazardous substances and physical hazards.
    3) Action levels and required responses for known and expected hazardous substances and physical hazards.
    4) Calibration and maintenance procedures for monitoring equipment.
i. Heat stress/cold stress prevention program.
j. Spill containment program.
k. Decontamination Program:
    1) Location and type of temporary decontamination facilities.
    2) General and specific decontamination procedures for personnel and PPE.
    3) General and specific decontamination procedures for equipment and vehicles.
    4) Disposal of residual waste from decontamination.
    5) Decontamination equipment and materials.
    6) Monitoring procedures used to evaluate the effectiveness of decontamination.
l. Emergency Response Plan:
    1) Potential emergencies that may occur during the Project.
    2) Pre-emergency planning.
    3) On-site emergency response equipment, materials, and PPE.
    4) Emergency Maps: Evacuation routes, gathering points, and route to nearest hospital.
    5) Emergency roles and responsibilities.
    6) Emergency alerting and evacuation procedures for Site personnel.
    7) Procedures for notifying, and list of emergency contact information for:
        a) Emergency responders, including fire officials, ambulance service, poison control, police, and local hospitals.
        b) Authorities having jurisdiction.
        c) Owner and Engineer.
        d) Contractor's project manager, superintendent, safety representative, and foreman.
        e) Other entities, as required.
    8) Emergency response procedures.
    9) Emergency decontamination, medical treatment, and first aid.
    10) Emergency response training.
m. Confined space entry program.
n. Other standard operating procedures applicable to the Work.

3. Submittal Procedure:
    a. Submit HASP to the Owner and Engineer the sooner of seven days prior to pre-construction conference (as described in Section 01 30 00 – Administrative Requirements), or 30 days prior to the Contractor's scheduled mobilization.
    b. Owner's/Engineer's review and acceptance of HASP will be only to determine if the topics covered in HASP comply with the Contract Documents. Owner's/Engineer's review and acceptance will not extend to safety measures, means, methods, techniques, procedures of construction, or whether representations made in the HASP comply with Laws and Regulations, or standards of good practice.
    c. Do not perform Work until written HASP has been accepted by Owner/Engineer.
    d. Notwithstanding other provisions of the Contract Documents, changes in the Contract Price or Contract Times will not be authorized due to delay by the Contractor in developing, submitting, or revising the HASP records.

1.08 RECORDS

A. Contractor Health and Safety Plan
   1. Retain at the Work Area complete and accurate health and safety records for all Contractor and Subcontractor employees assigned to the Project. Records must include, at a minimum, the following:
      a. Valid Training Certificates (as necessary and required):
         1) Initial 40-hour HAZWOPER training.
         2) Initial 24-hour HAZWOPER training.
         3) Eight-hour HAZWOPER supervisor training.
         4) Annual eight-hour HAZWOPER refresher training.
         5) 10-hour construction safety training.
         6) First-aid/cardiopulmonary resuscitation training.
         7) Other training required by HASP.
      b. Valid medical clearance certificates.
      c. Valid respirator fit test certificates.
      d. Accident reports prepared in accordance with Article 3.01 of this Section.
      e. Daily health and safety field reports prepared in accordance with Article 3.02 of this Section.
      f. Other records required by Laws and Regulations.
   2. Keep records up to date throughout the Project.
   3. The Contractor's safety representative must meet at least monthly with Owner and Engineer to review the Contractor's health and safety records and verify compliance with this Section.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 ACCIDENT REPORTING AND INVESTIGATION

A. Contractor Health and Safety Plan
   1. Immediately notify Owner of all accidents that:
      a. Result in bodily injury, illness, or property damage.
      b. Affect the environment.
      c. Involve the public.
   2. Submit accident report to Owner within 24 hours after accident occurs. Include in each report the following:
      a. Date, time, and location of accident.
      b. Names of all Site personnel involved in or affected by accident.
      c. Description of accident and activities being performed when accident occurred.
      d. Medical treatment administered, if any.
      e. Nature and seriousness of injury or damage.
   3. Comply with 29 CFR 1904.29, including using OSHA 300, 300-A, and 301 forms (or equivalent) to document all accidents that result in bodily injury.
   4. Based upon results of accident investigation, modify HASP as required by changing tasks or procedures to prevent reoccurrence of accident.
   5. Post current copy of the Contractor's OSHA 300-A report at conspicuous place at the Site from February 1 through April 30 of each year.

3.02 DAILY HEALTH AND SAFETY FIELD REPORTS

A. Contractor Health and Safety Plan
   1. Prepare daily health and safety field reports throughout the Project. Include in each report, at a minimum, the following:
      a. Contractor's name.
      b. Owner's name.
      c. Project name.
      d. Site name and location.
      e. Date and day of the week.
      f. Weather conditions.
      g. Delays encountered in construction.
      h. Acknowledgment of deficiencies noted along with corrective actions taken on current and previous deficiencies.
      i. Daily health and safety exposure monitoring results, documentation of instrument calibration, new hazards encountered, and PPE utilized.
      j. Problems, real or anticipated, encountered during the Work that should be brought to the attention of Owner and Engineer (i.e., brought to the attention immediately and documented in the daily report).
      k. Deviations from planned Work described in previously submitted daily health and safety field report(s).
   2. Submit daily health and safety field reports to the Owner by 9:00 a.m. the next working day after the day covered in the associated report. Daily reports must be signed by the Contractor's safety representative.

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SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope
   1. Temporary Support Facilities:
      a. Providing and maintaining field offices for Contractor and Owner/Engineer/ NYSDEC use with at least the minimum facilities specified.
      b. Providing required storage and work sheds.
      c. Providing complete and fully functional field offices within 14 days after date on which the Contract Times commence running.
      d. Paying for required permits and utilities. Field offices and sheds shall comply with Laws and Regulations.
      e. Providing additional temporary support facilities including, but not limited to:
         1) Sanitary Facilities
            a) Making all arrangements with temporary sanitary facility companies for temporary sanitary services and obtain required permits and approvals for temporary sanitary services.
            b) Paying all temporary sanitary facility service costs, including cost of electricity, water, fuel, and other utility services required for the Work.
            c) Continuously maintaining, including cleaning, adequate temporary sanitary facilities for all purposes during the Project, until removal of temporary sanitary facilities. At minimum, provide and maintain temporary sanitary facilities through Substantial Completion and removal of temporary field offices and sheds. Provide consumables as required.
            d) Providing temporary sanitary facilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.
         2) First Aid Facilities:
            a) Providing first-aid facilities adequate for personnel using the Site and in compliance with Laws and Regulations.
            b) Paying all costs for first-aid facilities, including installation, maintenance, and removal.
            c) Maintaining, including cleaning, first-aid facilities. Keep first-aid facilities continuously supplied with consumables.
            d) Locate adjacent to the Site's major work areas and inside Contractor's temporary field office. Contractor's safety representative shall determine first-aid station locations.
            e) Provide list of emergency telephone numbers at each hardwired telephone at the Site. List shall be in accordance with the list of emergency contact information required in Section 01 30 00 – Administrative Requirements.
            f) Provide at least one person trained in first aid. First-aid-trained personnel shall possess valid certificate indicating that they have successfully completed first-aid training course by the American Red Cross or similar entity.
         3) Temporary Utilities
            a) Making all arrangements with utility service companies for temporary services and obtain required permits and approvals for temporary utilities.
            b) Paying all utility service costs, including cost of electricity, water, fuel, and other utility services required for the Work.

c) Continuously maintaining adequate utilities for all purposes during the Project, until removal of temporary utilities and temporary facilities. At a minimum, providing and maintaining temporary utilities through Substantial Completion and removal of temporary field offices and sheds.
d) Should Owner occupy part of the Project prior to Substantial Completion of the entire Work, cost of utilities consumed via temporary utilities serving the portion occupied by Owner will be shared proportionately between Owner and Contractor as mutually agreed to by the parties.
e) Maintaining, including cleaning, temporary utilities and continuously providing consumables as required.
f) Ensuring that temporary utilities shall be adequate for personnel using the Site and requirements of the Project.
g) Providing temporary utilities in compliance with Laws and Regulations and, when applicable, requirements of utility owners.
1. Electrical service
2. Internet service
3. Lighting
4. Fire Protection

2. Temporary Controls:
a. Providing and maintaining methods, equipment, materials, and temporary construction as required to control environmental conditions at the Site and adjacent areas.
b. Maintaining temporary controls until no longer required.
c. Temporary controls include, but are not limited to, the following:
1) Turbidity and sheen control.
2) Water quality controls.
3) Noise controls.
4) Odor, dust, and vapor controls.
5) Pollution controls.
6) Erosion and sediment controls.

3. Temporary Project Signage:
a. Furnishing and installing temporary signage as specified in this Section for Project identification and construction site information.
b. Temporary signs include:
1) Project identification signs.
2) Project contact signs.
3) Danger signs.
4) Security signs.
c. Do not display any other temporary signs, other than those specified, without prior approval of Owner.
d. Maintaining temporary signs until Substantial Completion, or as otherwise directed by Owner.

B. Related Sections:
1. Section 01 30 00 – Administrative Requirements
2. Section 01 35 29 – Contractor's Health and Safety Plan
3. Section 01 70 00 – Execution and Closeout Requirements
4. Section 31 00 00 – Earthwork
5. Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal

C. Standards and Regulations
1. The following standards are referenced in this Section:
a. AASHTO M 288, Standard Specification for Geotextile Specification for Highway Applications.

b. ASTM D4751, Standard Test Method for Determining Apparent Opening Size (AOS) of a Geotextile.

2. Regulatory Requirements:
   a. Comply with applicable provisions and recommendations of the following:
      1) New York State Department of Environmental Conservation (NYSDEC) New York State Standards and Specifications for Erosion and Sediment Control.
      2) New York State Department of Transportation (NYSDOT) Standard Specifications and Standard Sheets.

1.02 SUBMITTALS

A. Temporary Support Facilities
   1. Action Submittals:
      a. Field Office Submittal: Submit the following as one submittal:
         1) Site plan indicating proposed location of field offices, parking for field offices, facilities related to the field offices, and material of both field office's parking and sidewalk or walkway to field offices.
            a) Base Engineer and Contractor support field offices in upland area for Contractor Use east side of MTA railroad.
            b) Base working enclosure on one or more barges to support Contractor personnel working on the barges.
            c) The Contractor may propose an alternate setup for Owner approval prior to mobilization.
         2) Information on proposed field office size, construction, exterior appearance, interior finishes, and field office security measures.
         3) Proposed layout of field office interior, showing location of offices, common areas, restroom, other areas specified (if any), with dimensions indicated for each.
         4) Proposed type of internet service; name of proposed Internet service provider; and product data and technical information on equipment (if any) required for Internet service.
         5) Office Equipment: Product data and technical information for copier, fax (if any), telephones, and other office equipment.

B. Temporary Controls
   1. Action Submittals:
      a. Submit the following plans (separate or as part of the Contractor's Project Operation Plan):
         1) Turbidity and Sheen Control Plan – plan at minimum must include the following:
            a) Final Bottom-Sealed Filter Barrier (BSFB) design details
               1. Design Basis
               2. Final Alignment (including description of bottom survey to ensure ability to establish and maintain bottom seal)
               3. Loading Calculations
               4. Anchoring Plan
               5. Installation Plan
               6. Operations, Monitoring, Maintenance and Repair Plan
               7. Removal Plan
            b) BSFB Operation Maintenance and Monitoring and Repair Plan
               1. Daily deployment observations
               2. Weekly inspections
               3. Periodic dive inspections (as needed).

c) Contingency Plan - document procedures, equipment, materials and personnel and shall account for identification and repair/addressing issues including, but not limited to:
    1. Failure to meet required water quality limits outside of the area enclosed by the BSFB
    2. Passage of unfiltered water over the top, under or between the end panels and shoreline attachment points
    3. Identification of any rips or tears in the BSFB
    4. Icing conditions that may cause problems with the integrity of the BSFB

2) Water Quality Control Plan – plan at minimum must include the following:
    a) Means and methods to prevent, or reduce to a minimum, any damage to surface water from pollution by debris, sediment, or other material, or from the manipulation of equipment and/or materials
    b) Means and methods to return supernatant water that accumulates in the material transport barge following sediment dredging and settling and that meets the requirements detailed in Part 3.01 B. 2. to the work area within the limits of the BSFB).
    c) List of in-water control materials (e.g., sorbent booms, sorbent pads) and plans for monitoring, addressing, identified visual water quality issues from the working barge.
3) Noise Control Plan – plan at minimum must include the following:
    a) Proposed plans to address/minimize noise to the extent possible in the event of complaints.
    b) Noise levels must comply with Laws and Regulations, including Occupational Safety and Health Administration (OSHA) requirements and local noise ordinances.
4) Odor, Dust and Vapor Control Plan – plan at minimum must include the following:
    a) Proposed means, methods, and facilities (including materials, equipment, techniques and site management practices) that will be employed to control Site-related odors, vapors, and dust generated during the Work.
    b) Contingency plans if Contractor's means, methods, and facilities are unsuccessful in controlling Site-related odors, vapors, and dust, based on visual observations or the results of community air monitoring.
5) Pollution Control Plan – plan at minimum must include the following:
    a) Proposed means, methods, and facilities to prevent contamination of soil, water, and atmosphere from discharge (e.g., spills, leaks, runoff, cross contamination) of noxious substances from construction operations.
    b) Include specific description of plans for controlling/protecting the following (in accordance with Part 3.01 B. 5. of this Section):
        1. Surface waters
        2. Sheen
        3. Atmospheric pollution
        4. Solid waste

b. Product Data: Submit manufacturer's product data, specifications, and installation instructions for the following:
    1) Silt fencing
    2) Vapor mitigation agents and proposed application and storage equipment for each.
    3) BSFB components
    4) Oil absorbent booms

C. Temporary Project Signage
   1. Action Submittals:
      a. Shop Drawings: Submit Shop Drawings showing layout, text, font, character size, colors, graphics or logos (if any), materials of construction, and dimensions of each temporary sign, and the proposed locations and orientations of temporary signs at the Site.

1.03 REQUIREMENTS

A. Field Offices and Sheds
   1. Field Office:
      a. Allocate a total of seven (7) reserved parking spaces per office for use by Owner, Engineer and NYSDEC in close proximity to the field offices. Parking area shall be paved with bituminous paving, concrete, crushed stone, or other material acceptable to Engineer. Parking area shall be suitably drained and free of standing water during wet weather.
      b. Provide sidewalk or walkway, at least four feet wide, of bituminous paving, concrete, crushed stone, or other material acceptable to Engineer, for the full distance between parking area and field offices.
   2. Field Office, Minimum Construction: Each field office shall conform to the following:
      a. Structurally sound foundation and superstructure.
      b. Size: Minimum floor area of 430 square feet, at least 10 feet wide.
      c. Completely weather-tight and insulated, with minimum R-19 insulation.
      d. Field Office Ingress and Egress:
         1) Two doors for ingress and egress for each field office unit, each with landing, stairs, and railing conforming to building codes in effect at the Site.
         2) Landing and stairs shall have slip-resistant walking surfaces, and be metal, pressure-treated wood, fiberglass, or concrete.
         3) Railing shall be metal, wood, or fiberglass.
         4) Doors shall be secure and lockable, and each furnished with suitable, lockable security bar by MasterLock or equal.
      e. Windows: Window area equal to at least ten percent of floor area. Windows shall each have insect screen and operable sash. Provide each window with lock and exterior security bars approved by Engineer.
      f. One lockable closet for storage.
      g. Furnish to Engineer two (2) identical sets of keys suitable for operating all keyed locks, including ingress/egress door locks, security bars for doors, window locks, closets, and office furnishings.
   3. Field Office Optional Construction:
      a. Provide mobile office trailer in first-class condition approved by Engineer, specifically designed for use as construction field office and conforming to requirements of this Section.
      b. Provide skirting around perimeter of each mobile field office trailer.
      c. Supplier: Provide field office by one of the following:
         1) Pac-Van, Inc.
         2) GE Modular Space Corporation.
         3) Or equal.

B. Barge Enclosure: Temporary support facility barge(s) and associated barge enclosure shall:
   1. Conform to 29 CFR 1926.605 (e.g., be equipped with adequate ladders, railings, lighting, etc.)
   2. Provide field office for Contractor's personnel (i.e., as necessary for protection from inclement weather).
   3. Provide required storage facilities.

C. Temporary Utilities
   1. Electrical:
      a. Provide temporary electrical service required for the Work, including continuous power for temporary field offices and sheds. Provide temporary outlets with circuit breaker protection and ground fault protection.
   2. Lighting:
      a. Minimum lighting shall be five foot-candles for open areas. Provide night security lighting of five foot-candles, minimum, within 50 feet of all parts of the Site during hours of darkness, controlled by photocell.
   3. Telephone and Communications:
      a. Provide temporary telephone and communications required for Remediation Contractor's operations at the Site and for summoning emergency medical assistance.
      b. Provide unlimited (untimed) high-speed, wireless Internet access.
   4. Heating, Ventilating, and Enclosures:
      a. Provide sufficient temporary heating, ventilating, and enclosures to ensure safe working conditions and prevent damage to existing facilities and the Work.
      b. Except where otherwise specified, temporary heating shall maintain temperature of the area served between 50 degrees F and maximum design temperature of building or facility and its contents.
      c. Maintain temperature of areas occupied by Owner's personnel or electronic equipment, including offices, lunchrooms, locker rooms, toilet rooms, and rooms containing computers, microprocessors, and control equipment, between 65 degrees F and 80 degrees F with relative humidity less than 75 percent.
      d. Required temperature range for storage areas and certain elements of the Work, including preparation of materials and surfaces, installation or application, and curing as applicable, shall be in accordance with the Contract Documents for the associated Work and the Supplier's recommended temperature range for storage, application, or installation, as appropriate.
      e. Provide temporary ventilation sufficient to prevent accumulation in construction areas and areas occupied by Owner of hazardous and nuisance levels or concentrations of dust and particulates, mist, fumes or vapors, odors, and gases associated with construction.
      f. Provide temporary enclosures and partitions required to maintain required temperature and humidity.
   5. Water:
      a. Provide temporary water facilities including piping, valves, meters if not provided by the owner of existing waterline, backflow preventers, pressure regulators, and other appurtenances. Provide freeze-protection as required.
      b. Provide water for temporary sanitary facilities, field offices, Site maintenance and cleaning and, when applicable, disinfecting and testing of systems.
      c. Continuously maintain adequate water flow and pressure for all purposes during the Project, until removal of temporary water system.
   6. Fire Protection:
      a. Provide temporary fire protection, including portable fire extinguishers rated not less than 2A or 5B in accordance with NFPA 10, Portable Fire Extinguishers.
      b. Comply with NFPA 241 and requirements of fire marshals and authorities having jurisdiction at the Site.

D. Sanitary Facilities
   1. Provide suitably enclosed chemical or self-contained toilets and suitable temporary washing facilities for employees and visitors to the Site. Location of temporary toilets shall be acceptable to Owner.

2. Provide supply of potable drinking water and related facilities and consumables for all personnel using.

E. Temporary Access Roads and Parking Areas
1. Site Access:
   a. Access the Site shall via designated access locations (as shown on Design Drawings).
   b. Comply with public roadway requirements for weight and height.
2. Park Remediation Contractor employee vehicles area(s) proposed by the Remediation Contractor and approved by Con Edison prior to mobilization.
3. Park construction vehicles and equipment in work areas off permanent roads and parking areas, in areas of the Site designated for Remediation Contractor staging.

PART 2– PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Temporary Utilities
1. Materials and equipment for temporary systems may be new or used but shall be adequate for purposes intended and shall not create unsafe conditions and shall comply with Laws and Regulations.
2. Provide required materials, equipment, and facilities, including piping, wiring, and controls.

B. Field Offices (minimum two trailers)
1. Provide the following for each field office:
   a. Electrical System and Lighting:
      1) Electric service as required, including paying all costs.
      2) Interior lighting of 50 foot-candles at desktop height.
      3) Minimum of eight 120-volt, wall-mounted, duplex convenience electrical receptacles.
      4) Exterior, wall-mounted, 250-watt lighting at each entrance.
   b. Heating, Ventilating, and Air Conditioning:
      1) Automatic heating to maintain indoor temperature of at least 65 degrees F in cold weather.
      2) Automatic cooling to maintain indoor temperature no warmer than 75 degrees F in warm weather.
      3) Furnish all fuel and pay all utility costs.
   c. Telephone Service:
      1) Private telephone service, including payment of installation, monthly, and service costs.
      2) Provide four telephone lines, two for voice and two for fax service (four lines total), each with separate telephone number assigned by the telephone company.
      3) Pay for unlimited local and long-distance service for duration of the Project.
   d. Internet Service:
      1) Obtain and pay for Internet service, with unlimited (untimed) Internet access, until removal of field office trailers.
      2) Provide fiber-optic or cable connection with appropriate modem and appurtenances, and dual-band Wireless-N router.
      3) Minimum Speed: Up to 15 megabits per second download, up to 1 megabit per second upload.

4) Set up system and appurtenances required and verify functionality in each field office space.

e. Should actions of utility companies delay the complete set up of field office, Remediation Contractor shall provide temporary electricity, heat, water supply, sanitary facilities, and telephone service as required at no additional cost to Owner.

2. Provide the following for the barge enclosure:
   a. Electricity via barge-based generator(s) housed inside an enclosure for noise reduction and including secondary containment.
   b. Heating ventilation and air conditioning consistent with the requirements of Part 2.01 B. 1 of this Section.
   c. Means for immediate communication with land-based project support via two-way radio and/or cell phone
   d. Necessary lighting to conduct work.

2.02 FIELD FURNISHINGS AND EQUIPMENT

A. Remediation Contractor's Field Office:
   1. Furnishings:
      a. Conference Facilities: Provide conference area with conference table and enough chairs for 20 people. Conference facilities and furnishings shall be provided with suitable utilities, lighting, and temperature controls prior to the first progress meeting, unless otherwise approved by Engineer.
      b. Other furnishings required by Remediation Contractor.
         1) Provide on field office an exterior identification sign displaying Remediation Contractor's company name. Maximum size of sign shall be four feet by eight feet. Sign shall be suitable for outdoor use for the duration of the Project.
         2) Furnish and maintain at Remediation Contractor's field office twelve protective helmets for use by visitors to the Site.
      c. Storage and Work Sheds:
         1) Provide storage and work sheds sized, furnished, and equipped to accommodate personnel, materials, and equipment involved in the Work, including temporary utility services and facilities required for environmental controls sufficient for personnel, materials, and equipment.

B. Owner/ Engineer/ NYSDEC's Field Office:
   1. Desks: Four five-drawer desks, each five feet long by 2.5 feet wide with at least one file drawer per desk suitable for storing 8.5-inch by 11-inch documents.
   2. Desk Chairs: Four new or used (in good condition) five-point, high backed, cushioned swivel chairs.
   3. Other Chairs: Four side chairs with arm rests and padded seats and backs, and eight metal folding chairs without arm rests.
   4. Tables:
      a. Two new or used (in good condition) portable folding tables, each eight feet long by 2.5 feet wide.
      b. Two new or used (in good condition) portable folding tables, each six feet long by 2.5 feet wide.
   5. Plan rack(s) to hold a minimum of eight sets of the Drawings.
   6. Two four-drawer, legal size, fire-proof, filing cabinets with locks.
      a. One, 2-door storage cabinet.
      b. Shelving or bookcase with a total of 12-feet of shelf length at least 12-inches deep.
   7. Four polyethylene waste baskets, each with minimum 13-gallon capacity.
   8. Suitable doormat at each exterior ingress/egress door.
   9. One tack board 2.5 feet by 3-feet, with thumbtacks.

10. One white board for use with dry markers, approximately six feet long by four feet wide, with marker holding tray, installed by Contractor at location selected by Engineer in the field. Furnish supply of colored markers and eraser for the white board.
11. Fire extinguishers with associated signage, and smoke detector, in accordance with Laws and Regulations. At a minimum, for each field office structure, provide two wall-mounted fire extinguishers and one battery-operated, ceiling-mounted smoke detector.
12. First-aid kit, by Zee Medical Service Co., Item 0125, "Kit, Utility, Metal, Full (ANSI)", www.zeemedical.com, or equal.
13. Temperature and Humidity Monitor: Sensor installed outdoors in shade; display installed inside field office. Unit shall display daily minimum and maximum temperature and current temperature, and able to display daily minimum and maximum relative humidity and current relative humidity and have audible alarm and adjustable alarm set points. Provide Fisher Scientific "Fisherbrand Remote Alarm RH/Temperature Monitor" Catalog No. S90194, or equal. Provide batteries for unit as required.
14. Two electric clocks.
15. One electric coffee maker with ten-cup capacity or larger.
16. One microwave oven with minimum capacity of 0.9 cubic foot.
17. Two refrigerators, each with minimum capacity of 2.5 cubic feet.
18. Bottled water with electric cooler dispenser for five-gallon bottles, with cup dispenser.
19. Multifunction Printer:
    a. Two new or used (in good condition) machines with the following functions:
        1) Photocopying.
        2) Network printing.
        3) Scanning to produce PDF and JPG files.
        4) E-mail.
        5) Fax via telephone line.
    b. Products and Manufacturers: Provide one of the following:
        1) Xerox WorkCentre Pro 7345
        2) Canon imageRUNNER C3380
        3) Toshiba eSTUDIO3510C
        4) Brother MFC-j430w
        5) Or equal
    c. Provide necessary cables and appurtenances to enable all functions specified in this Section, including scan-and-email and printing from field office computers.
20. Telephone System:
    a. Telephone System Features:
        1) Provide two cordless telephones, each with hands-free speaker, speed dialing with minimum of 16 programmable numbers, volume control, LCD display, and buttons for hold and mute.
        2) Set up and verify operation of each telephone set.
    b. Provide two digital telephone answering machines.

C. Temporary Controls
1. Turbidity and Sheen Controls
    a. Bottom-Sealed Filter Barrier:
        1) Subcontract with Mackworth-Enviro (2 White Sands Lane Scarborough, Maine 04074 207.883.1777; info@mackworth-enviro.com) for the final design; supply; installation; maintenance; and removal of BSFB
    b. Three Layer Composite Filtration System
        1) Three-layer composite system.
            a) Outer layers – woven polypropylene (abrasion and debris protection)
                1. Puncture Strength per ASTM D 6241: 90 lbs.
                2. Grab Tensile per ASTM D 4632: 365 lbs.
            b) Inner layer – non-woven polypropylene (primary filtering layer).

1. Mass per unit area per ASTM D 5261: 12 oz/yd2.
2. Apparent Opening Size (AOS) per ASTM D 4751: 0.15 mm.

2) Layers must be sewn together to limit fabric movement.

c. Flotation
   1) Continuous polystyrene or polyethylene cylinders
      a) Minimum buoyancy to weight ratio: 4:1.
      b) Minimum density: 2 lb/ft.
      c) Foam water absorption per ASTM 1523 (using ASTM test C272): ≤ 3%.
   2) Wrap flotation with an impermeable covering (flotation hood) sewn into the filter media
      a) Grab Tensile per ASTM D751: 650 lbs.
      b) Tongue tear per ASTM D751: 150 lbs.
      c) Ply adhesion per ASTM D751: 15 lbs./in.
      d) Base fabric weight: 7.3 oz/yd
      e) Coated fabric weight: 30 oz/yd.
      f) Coating shall be evenly applied with equal thickness on either side of the internal scrim.
      g) Color to be determined by Contractor.

d. Sealing Skirt
   1) Impermeable material:
      a) Grab Tensile per ASTM D751: 650 lbs.
      b) Tongue tear per ASTM D751: 150 lb.
      c) Ply Adhesion per ASTM D751: 15 lbs/in.
      d) Base fabric weight 7.3 oz/yd.
      e) Coated weight: 30 oz/yd.

e. Chain Ballast
   1) Lower ballast
      a) Install at the terminal end (i.e., bottom) of the sealing skirt and at the sealing skirt to filter media connection.
      b) Continuous and minimum 4 lbs/linear ft.

f. Tension Member
   1) Minimum 4-ft width
   2) Install upper and lower tension members at:
      a) top of the filter media
      b) intersection between the filter media and sealing skirt
      c) bottom of sealing skirt

g. Section Connection
   1) Overlap adjacent BSFB sections a minimum of 8-inches.
   2) Place a layer of Huesker NAPL Mat (or equivalent) between adjacent BSFB section overlap and double-bolt (i.e. two vertical rows) to connect sections with 6-in vertical spacing between bolts.
   3) Use galvanized or stainless-steel hardware for all connections.
   4) Install stainless steel grommets (I.D. 7/8”) in each bolt hole.
   5) Use ASTM Tool-Free Aluminum connectors for flotation hood connections

h. D-Ring Attachments
   1) Use D-ring attachment points to connect mooring tethers to the BSFB and to attach vertical reefing lines between terminal end of sealing skirt and top of composite filtration system.
   2) Locate D-ring anchor points under the flotation hood at intervals as outlined on Drawing G-502, on shoreside of filter barrier. Additional lower mooring/D-ring anchor attachment points are required as specified on Drawing G-502.
   3) Upper and lower anchor points shall be bolt-on and of sufficient size to accommodate 5,000 lbs. of load. All hardware shall be galvanized or stainless steel

4) Use sewn in D-rings at the upper and lower tension member as shown on Drawing G-502.
5) Use ¾" galvanized shackles to connect D-rings across section connections.

i. Reefing Lines
1) Connect reefing lines vertically between D-rings located at the top of the composite filtration system and the termination of the sealing skirt.
2) Reefing lines to be 3/8" min, 5/8" max polypropylene line.

j. Anchors
1) Install pipe piles at regular intervals not to exceed 60 feet along the length of the BSFB.
2) Install anchors outside (i.e., west) of BSFB materials as indicated on Drawing G-103.
3) Select piles as part of final BSFB design in conjunction with subcontractor.
4) Effectively secure BSFB to the shoreline to withstand current and wave loads and maintain an effective seal to prevent unfiltered water from inside the BSFB to bypass the filter barrier.
a) Shoreline seal includes but not limited to the following:
1. Sandbags
2. Geotextile
3. Grout
5) North termination may use additional pilings as necessary to control end of barrier and to achieve adequate shoreline transition seal in conjunction with #1 above.

k. Connect BSFB D-rings to pipe piles using mooring tethers.
1) Min. 7/16" chain (or equivalent) with pipe rollers.
2) Include enough slack to allow the BSFB to rest 3' – 5' away from the pipe piles.

l. Oil Absorbent Boom:
1) Utilize oil absorbent booms in addition to the upper low-permeability curtain included as part of the BSFB as "first line" of preventing migration of sheen and oil on the water surface.
2) Anchor or otherwise secure oil absorbent booms inside of the Work area to prevent oil/sheen migration beyond the boom.
3) Place oil absorbent booms around work vessels transferring sediment and/or debris.
4) Oil absorbent booms must be five to eight inches in diameter.
5) Contractor must maintain, remove, containerize, dispose of and replace oil absorbent booms as necessary to prevent oil/sheen migration beyond the boom.

2. Odor, Vapor, and Dust Controls
a. Vapor Mitigation Agents: Provide the following:
1) BioSolve® Pinkwater®, by The BioSolve Company.
2) AC-645 Long-Duration Foam, by Rusmar, Inc.
b. Water: Clean, potable.
c. Provide pressure washers, pneumatic foam unit, portable tanks, hoses, and other equipment required for the storage and application of vapor mitigation agents and water.

3. Pollution Controls
a. Provide spill kits and oil-absorbent pads, rolls, and booms as required to contain spills, should they occur, and prevent the potential migration of pollutants in accordance with all applicable Laws and Regulations. Spill kits must be located within active remediation areas (i.e., on barges during NAPL barrier wall installation and sediment dredging) and dispersed around the site near equipment and petroleum storage areas.

4. Erosion and Sediment Controls
a. General:

1) Materials used for erosion and sediment controls must be in accordance with the applicable regulatory requirements indicated in Part 1.01. C.2. of this Section, unless otherwise shown or indicated in the Contract Documents.

b. Silt Fencing:
   1) Filter Fabric:
      a) Material: Geotextile must comply with AASHTO M 288-96 Class 1 or 2.
      b) Height: Three feet, minimum.
   2) Fence Support Posts:
      a) Material: Hardwood or steel posts may be used.
         1. Hardwood posts must be at least 1.25 inches by 1.25 inches in cross section.
         2. Steel posts must be "T" or "U" shape in cross section with a minimum weight of 1.0 pound per linear foot.
      b) Length: Four feet, minimum.
   3) Fabric fasteners must be heavy-duty staples, wire ties, or other fastener compatible with support post material.

D. Temporary Project Signage
1. Project Identification Signs:
   a. Project identification signs, including layout, fonts, logos, and colors, will be as specified in the NYSDEC guidance document included with this Section.
   b. Location: Mounted on land in the far northern end of Peekskill Landing Park near triangle parcel.
   c. Text Inserts: Text inserts must be centered horizontally on sign board in the specified locations.
      1) Program Name: “State Superfund Program”.
      2) Site Name: “Former Pemart Avenue Works MGP Site”.
      3) Site Number: “Site No. 360166”.
      4) Name of Party Performing Remedial Activities: “Consolidated Edison Company of New York, Inc.”.
      5) Governor: “Governor: Andrew M. Cuomo” (or current)
      6) Commissioner: “Commissioner: Basil Seggos” (or current)
      7) Municipal Executive: “City of Peekskill Mayor: André K. Rainey,” (or current)
   d. Background Color: White.
   e. Text Height: 1.5 inches, minimum.
   f. Printing: Digital or screen printing with ultraviolet-resistant inks.
   g. Sign Board:
      1) Material: Aluminum composite, minimum thickness of three millimeters.
      2) Minimum Dimensions: 96 inches wide by 48 inches high.
   h. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.
   i. Obtain Engineer approval before releasing for manufacture.
2. Construction Warning Signs:
   a. Location: Mounted on fencing (as appropriate) at intervals of 100 linear feet and on either side of temporary Site security gate (two signs per gate).
   b. Text: “WARNING” in upper panel and “CONSTRUCTION AREA AUTHORIZED PERSONNEL ONLY” in lower panel.
   c. Background Color: Red upper panel, black outline along border, and white lower panel.
   d. Text Color: White in upper panel and black in lower panel.
   e. Printing: Digital or screen printing with ultraviolet-resistant inks.
   f. Sign Board:
      1) Material: Treated polyethylene, thickness of 0.055 inch.
      2) Minimum Dimensions: 14 inches wide by 10 inches high.

g. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.

3. Security Signs:
   a. Location: Mounted on fencing in the far northern end of Peekskill Landing Park near triangle parcel and at entrances of each field office trailer (one sign per trailer entrance).
   b. Text: “SECURITY NOTICE” in upper panel and “ALL VISITORS MUST SIGN-IN AT THE FIELD OFFICE” in lower panel.
   c. Background Color: Yellow upper panel, black outline along border, and white lower panel.
   d. Text Color: Black for upper and lower panels.
   e. Printing: Digital or screen printing with ultraviolet-resistant inks.
   f. Sign Board:
      1) Material: Treated polyethylene, thickness of 0.055 inch.
      2) Minimum Dimensions: 20 inches wide by 14 inches high.
   g. Supports and Bracing: Provide supports and bracing as required to adequately support and brace signs for the duration of the Project.

PART 3 – EXECUTION

3.01 INSTALLATION AND MAINTENANCE

A. Temporary Support Facilities:
   1. Install materials and equipment, including prefabricated structures, in accordance with manufacturer’s instructions.
   2. Modify and extend temporary systems as required by progress of the Work.
   3. Provide the following maintenance services
      a. Immediately repair malfunctioning, or defective field office systems and equipment.
      b. Provide all supplies and pay for copier maintenance.
      c. Promptly provide snow removal for all working platforms on the barge(s) and other equipment including field offices, parking area, walkways, and stairs and landings.
      d. Provide maintenance and janitorial service of field offices and sanitary facilities. Clean field offices at least once per week.
      e. Properly dispose of trash as needed, at least twice per week. Dispose of other waste, if any, as required, to avoid creation of nuisances.
      f. Maintain temporary sanitary facilities to provide safe, continuous service as required.
   4. At end of each workday, check temporary sanitary facilities and verify that sufficient consumables are available to maintain operation until work is resumed at the Site. Provide additional consumables if the supply on hand is insufficient.
   5. Provide the following consumables as required.
      a. Printer supplies
      b. White board set
      c. Potable water and coffee supplies
      d. Sanitary and safety supplies

B. Temporary Controls:
   1. Turbidity and Sheen Control
      a. General:
         1) Provide BSFB as indicated on the Drawings and elsewhere in the Contract Documents.
         2) Install BSFB to isolate the Work area from surrounding waters.
         3) Install the BSFB to ensure that no fish are on the Work area side of the BSFB system.

4) Use best management practices (BMPs) to control turbidity and sheen, including mechanical controls.

b. Provide all turbidity and sheen control measures required by the Contract Documents prior to commencing activities that will disturb sediment.

c. Implement construction procedures associated with, or that may affect, turbidity and sheen control to ensure minimum damage to the environment during construction. Contractor must implement any and all additional measures required to comply with Laws and Regulations.

d. Earthwork and Temporary Controls:
   1) Perform sediment removal, fill, and related operations in accordance with Section 31 00 00 – Earthwork and Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal.
   2) Control turbidity and sheen to minimize transport of material to or from the Site, and adjacent surface waters. Such measures must include, but are not limited to, use of the aquatic filter barrier. Apply such temporary measures to areas disturbed by activities associated with the construction of the Project.

e. Turbidity Monitoring:
   1) The Engineer will conduct turbidity monitoring as presented in this Section to monitor the effectiveness of the BSFB.
   2) The Engineer will continuously monitor turbidity using remote turbidity monitors equipped with telemetry at three locations positioned both upstream and downstream from the dredge area. Monitoring locations will be determined based on tide conditions, active work being performed, and health and safety consideration. If suspended sediment particles (turbidity) caused by work activities is observed outside of the active work area, then turbidity monitoring will be conducted at that location. Depth to the top of sediment will be measured and recorded prior to each turbidity monitoring event. The Engineer will measure and record turbidity levels with a handheld device (in nephelometric turbidity units [NTUs]) at the approximate mid-depth elevation at each of the upstream and downstream locations. Turbidity action levels are as follows:
      a) If any visual indications of turbidity are noted outside of the BSFB due to construction activities (regardless of NTU readings) this will trigger an automatic work stoppage until the source of the turbidity can be identified. Work activities may resume with authorization from Con Edison, the NYSDEC or the Engineer following repair or correction of the turbidity controls.
      b) If downstream turbidity exceeds upstream turbidity by more than 50 NTUs (i.e., the action level):
         1. The Engineer will conduct additional monitoring 15 to 30 minutes later. If the additional data are within required limits, no additional corrective actions are required.
         2. If the additional data do not meet the required limits:
            a) The Owner will direct Contractor to slow work. This determination will be made by the Owner based on factors such as the magnitude of the exceedance and visual observation of turbidity outside of the BSFB.
            b) The Contractor will inspect the perimeter of the Work Area for potential breaches or damage to the BSFB and make repairs as appropriate.
         3. Once work has slowed and, if necessary, repairs and inspections to the aquatic filter barrier are complete, the Engineer will wait 30 minutes and conduct additional monitoring. If the additional data are within the required limits, no additional corrective actions are required. The original pace of work may resume the next morning or if the data collected during

the following tidal cycle are within the required limits, whichever occurs first. The Engineer will wait 30 minutes after the original pace resumes and conduct additional monitoring to confirm that the turbidity action levels are not exceeded at the resumed pace.

4. If the additional data collected after slowing work and/or repairs to the aquatic filter barrier are made, and the readings exceed the action levels, the Contractor will stop in-water activities. If such action was not already taken, the Contractor must inspect the aquatic filter barrier, perform maintenance/repairs, make operational changes, and/or implement BMPs, as appropriate. The Engineer will monitor every 15-30 minutes once inspection and repairs are complete. In-water Work may resume once two consecutive readings indicate that the difference between turbidity levels upstream and downstream of the work area are less than the action level, or the next morning, whichever occurs first. The Engineer will resume monitoring at the frequency of twice daily following acceptance of the two consecutive readings.

f. Inspection and Maintenance:
   1) Periodically inspect areas where sediment is disturbed to detect evidence of the start of turbidity and sheen; apply corrective measures as required to control turbidity and sheen.
   2) Contact Mackworth-Enviro (Andrew McCusker, (207) 883-1777 Office; (207) 653-6777 Mobile) within 1 hour of Contractor becoming aware of potential damage or needed repair to BSFB.

g. Duration of Turbidity and Sheen Controls: Maintain turbidity and sheen controls in effective working condition until the associated Work area has been returned to pre-construction conditions.

h. Exceedances: The Engineer will immediately notify the Contractor and Owner of readings exceeding the turbidity action level.

i. Work Stoppage: If the Work is temporarily stopped or suspended for any reason, Contractor must provide additional temporary controls necessary to prevent environmental damage to the Site and adjacent areas while the Work is stopped or suspended.

j. Failure to Provide Adequate Controls: In the event the Contractor repeatedly fails to satisfactorily control turbidity and sheen, the Engineer reserves the right to employ outside assistance or to use the Owner's own forces for turbidity and sheen control. Cost of such work, plus engineering and inspection costs, will be deducted from monies due the Contractor.

2. Water Quality Control
   a. Take all precautions to prevent, or reduce to a minimum, any damage to surface water from pollution by debris, sediment, or other material, or from the manipulation of equipment and/or materials within or adjacent to existing and new drainage systems, creeks, streams, rivers, impoundments, or other water bodies.
   b. Return supernatant water that accumulates in the material transport barge following sediment dredging and settling to the isolated dredge work area (i.e., within the limits of the BSFB) provided that no sheen or floating free product is observed and turbidity of the supernatant is less than 50 NTU (as measured by the Engineer).
   c. Maintain an adequate supply of in-water controls such as sorbent booms and sorbent pads on the working barge during construction.
3. Noise Control
   a. Minimize noise emissions to greatest degree practicable. Provide mufflers, silencers, and sound barriers when necessary.
   b. Noise levels must comply with Laws and Regulations, including Occupational Safety and Health Administration (OSHA) requirements and local noise ordinances.

4. Odor, Vapor, and Dust Control
    a. General:
        1) Provide means, methods, and facilities required to control Site-related odors, vapors, and dust generated during the Work.
        2) Proactively employ odor, vapor, and dust controls during all excavation and dredging activities, and evaluate and modify construction techniques and site management practices, as necessary and appropriate, to:
            a) Mitigate Site-related odor emissions to the extent practicable, and to the satisfaction of Owner, Engineer, and NYSDEC.
            b) Prevent exceedances of the community air monitoring action levels specified in the CAMP.
        3) If Contractor's means, methods, and facilities are unsuccessful in controlling Site-related odors, vapors, and dust as specified in this Section, based on visual observations or the results of community air monitoring, suspend work until appropriate corrective actions are taken by the Contractor to remedy the situation to Engineer's satisfaction. Owner will not be liable for any expense or delay resulting from the Contractor's failure to control Site-related odors, vapors, and dust in accordance with this Section.
    b. Vapor Mitigation Agents:
        1) Mobilize vapor mitigation agents and means of storage and dispersion at the Site before initiating any ground-intrusive Work or dust-generating Work.
        2) Apply vapor mitigation agents as follows:
            a) BioSolve Pinkwater:
                1. Prepare three-percent solution of BioSolve® Pinkwater® concentrate and water. Apply to uncovered dredged sediments stored on barges using backpack sprayers, power washers, or misters.
                2. Apply when actively handling dredged materials, as required by Owner or Engineer, and as determined necessary by the NYSDEC.
                3. DO NOT spray/apply Biosolve directly into waterbody under any circumstance.
            b) AC-645 Long-Duration Foam:
                1. Prepare 13-percent solution of AC-645 Long-Duration Foam concentrate and water. Apply to uncovered dredged sediments stored on barges using pneumatic foam unit. Completely and uniformly cover exposed sediment surfaces with minimum three inches of foam.
                2. Apply before each work break, at the end of each workday, as required by Owner or Engineer, and as determined necessary by the NYSDEC.
                3. DO NOT spray/apply long-duration foam directly into waterbody under any circumstances
    c. Construction Techniques and Site Management Practices:
        1) Dredge and backfill, and load, handle, and unload dredged materials and clean fill materials, in manner that minimizes the generation of airborne dust.
        2) Cover stockpiles of clean fill materials with polyethylene liners before extended work breaks and at the end of each workday. Slope to prevent accumulation of water.
        3) Comply with progress cleaning requirements of Section 01 70 00 – Execution and Closeout Requirements.
5. Pollution Control
    a. General:
        1) Provide means, methods, and facilities required to prevent contamination of soil, water, and atmosphere caused by discharge of noxious substances from construction operations.
        2) Equipment used during construction must comply with Laws and Regulations.
        3) Comply with Section 01 35 29 – Contractor's Health and Safety Plan.

b. Spills and Contamination:
    1) Provide equipment and personnel to perform emergency measures required to contain spills (e.g., equipment leaks) and to remove impacted soils and liquids.
c. Protection of Surface Waters: Implement special measures to prevent harmful substances from entering surface waters. Prevent disposal of wastes, effluents, chemicals, and other such substances in or adjacent to surface waters and open drainage routes, in sanitary or storm sewers.
d. Sheen Controls:
    1) Maintain oil absorbent booms as part of the aquatic filter barrier system as shown on the Design Drawings to prevent migration of oils/sheens beyond the Work area.
    2) Implement measures to reduce generation of sheens.
e. Atmospheric Pollutants:
    1) Provide systems for controlling atmospheric pollutants related to the Work.
    2) Prevent harmful dispersal of pollutants into the atmosphere.
f. Solid Waste:
    1) Provide systems for controlling and managing solid waste related to the Work.
    2) Prevent solid waste from becoming airborne, and from discharging to surface waters and drainage routes.
    3) Properly handle and dispose of solid waste.

6. Erosion and Sediment Control
    a. General:
        1) Provide erosion and sediment controls as shown and indicated on the Design Drawings and elsewhere in the Contract Documents. Provide erosion and sediment controls as the Work progresses into previously undisturbed areas.
        2) Install of erosion and sediment controls in accordance with the applicable regulatory requirements indicated in Part 1.01. C. of this Section, unless otherwise shown or indicated in the Contract Documents.
        3) Use necessary methods to successfully control erosion and sedimentation, including ecology-oriented construction practices, vegetative measures, and mechanical controls. Use best management practices in accordance with Laws and Regulations, and regulatory requirements indicated in Part 1.01. C. of this Section, to control erosion and sedimentation during the Project.
        4) Plan and execute construction, disturbances of soils and soil cover, and earthwork by methods to control surface drainage from cuts and fills, and from borrow and waste disposal areas, to prevent erosion and sedimentation. Provide temporary measures for controlling erosion and sedimentation, as indicated in the Contract Documents and as required for the Project.
        5) Where areas must be cleared for storage of materials or equipment, or for temporary facilities, make provisions for regulating drainage and controlling erosion and sedimentation, subject to Engineer’s approval.
        6) Provide erosion and sediment controls, including stabilization of soils, at the end of each workday.
    b. Coordination:
        1) Coordinate erosion and sediment controls with this Section's requirements on water control.
        2) Coordinate temporary erosion and sediment controls with construction of permanent drainage facilities and other Work to the extent necessary for economical, effective, and continuous erosion and sediment control.
    c. Before commencing activities that will disturb soil or soil cover at the Site, provide all erosion and sediment control measures required by the Contract Documents for the areas where soil or soil cover will be disturbed.

d. In general, implement construction procedures associated with, or that may affect, erosion and sediment control to ensure minimum damage to the environment during construction.
e. Vegetation Removal:
    1) Remove only those shrubs, grasses, and other vegetation that must be removed for construction. Protect remaining vegetation.
f. Earthwork and Temporary Controls:
    1) Perform excavation, fill, and related operations in accordance with Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal.
    2) Control erosion to minimize transport of silt from the Site into existing waterways and surface waters. Such measures must include, but are not limited to, using berms, silt fencing, rolled erosion control materials, gravel or crushed stone, slope drains, and other methods. Apply such temporary measures to erodible materials exposed by activities associated with the remedial construction.
    3) Hold to a minimum the areas of bare soil exposed at one time.
    4) In performing earthwork, eliminate depressions that could serve as mosquito pools.
    5) Take special care in areas with steep slopes, where disturbance of vegetation must be minimized to maintain soil stability.
g. Inspection and Maintenance:
    1) Periodically inspect areas of earthwork and areas where soil or soil cover are disturbed to detect evidence of the start of erosion and sedimentation; apply corrective measures as required to control erosion and sedimentation. Continue inspections and corrective measures until soils are permanently stabilized and permanent vegetation has been established.
    2) Inspect erosion and sediment controls prior to conducting any intrusive activities. During Work, inspect erosion and sediment controls at least once every seven days until restoration is complete.
    3) Repair or replace damaged erosion and sediment controls within one day of the Contractor becoming aware of such damage.
    4) Periodically remove silt and sediment that has accumulated in or behind sediment and erosion controls. Properly dispose of silt and sediment.
h. Duration of Erosion and Sediment Controls:
    1) Maintain erosion and sediment controls in effective working condition until the associated drainage area has been permanently stabilized.
    2) Maintain erosion and sediment controls until the Site is restored and site improvements including landscaping, if any, are complete with underlying soils permanently stabilized.
i. Work Stoppage: If the Work is temporarily stopped or suspended for any reason, Contractor must provide additional temporary controls necessary to prevent environmental damage to the Site and adjacent areas while the Work is stopped or suspended.
j. Failure to Provide Adequate Controls: In the event the Contractor repeatedly fails to satisfactorily control erosion and siltation, Owner reserves the right to employ outside assistance or to use Owner's own forces for erosion and sediment control. Cost of such work, plus engineering and inspection costs, will be deducted from monies due to the Contractor.
k. Silt Fencing:
    1) Install and maintain silt fencing in a vertical plane, at the location(s) shown or indicated on the Design Drawings.
    2) Locations of Silt Fencing:
        a) Where possible, install silt fencing along contour lines so that each given run of fencing is at the same elevation.

b) On slopes, install silt fencing at intervals that do not exceed the maximum lengths indicated in Table 01 50 00-A.

TABLE 01 50 00-A
MAXIMUM LENGTH OF SLOPE BETWEEN RUNS

Slope	Slope Length (feet)
1:2 (50%)	25
1:3 (33%)	50
1:4 (25%)	75
1:5 (20%) and Less	100

3) Provide erosion and sediment control measures around the perimeter of each stockpile of topsoil, general fill material, and excavated material. Install erosion and sediment control before expected precipitation and maintain until stockpile is removed.
4) Do not install silt fencing at the following types of locations:
   a) Area of concentrated storm water flows such as ditches, swales, or channels.
   b) Where rock or rocky soils prevent full and uniform anchoring of silt fencing.
   c) Across upstream or discharge ends of storm water piping or culverts.
5) Installation:
   a) Securely fasten filter fabric to each support post in no less than four locations. Spacing between support posts must not exceed 10 feet (center to center).
   b) When two sections of filter fabric abut each other, fold over edges and overlap by minimum of six inches and securely fasten to wire mesh.
   c) Embed posts in the ground to the depth necessary for proper controls, but not less than 16 inches below ground surface.
   d) Filter fabric must extend a minimum of six inches below ground and a minimum of 20 inches above ground.
   e) Filter fabric at bottom of silt fence must be buried in a trench, in a "J" configuration, to a depth of six inches.
   f) Remove sediment accumulated at silt fencing as required. Repair and reinstall silt fencing as required.
6) Maintenance:
   a) Conduct a routine inspection at least once every seven days until final restoration.
   b) Remove accumulated sediment when depth reaches one-half the effective height of the sediment control.
   c) Repair and reinstall silt fencing as required.
   d) Do not allow formation of concentrated storm water flows on slopes above silt fencing unless so shown or indicated in the Contract Documents. If unauthorized concentrated storm water flows occur, stabilize the slope via earthmoving and other stabilization measures as required to prevent flow of concentrated storm water flows toward silt fencing.

C. Temporary Project Signage
   1. Installation:
      a. Install temporary signs within 14 days of Engineer's approval of the submittal required by this Section.
      b. Obtain Owner and Engineer approval of installation locations before installing temporary signs.

2. Maintenance:
    a. Maintain temporary signage so that signs are clean, legible, and upright. Cut grass, weeds, and other plants so that temporary signs are not covered or obscured.
    b. Repair or replace damaged temporary signs. Relocate signs as required by progress of the Project.

3.02 PROHIBITED CONSTRUCTION PROCEDURE

A. Temporary Controls
    1. Prohibited construction procedures include, but are not limited to, the following:
        a. Dumping or disposing of spoil material, cleared vegetation, debris, or other waste material in any surface waters, drainage ways, or other unauthorized locations.
        b. Indiscriminate, arbitrary, or capricious operation of equipment in any surface waters, drainage ways, or other unauthorized locations.
        c. Pumping silt-laden water from trenches or other excavations to any surface waters, drainage ways, sewers, or other unauthorized locations.
        d. Damaging vegetation beyond the extent necessary for construction.

3.03 REMOVAL OF TEMPORARY CONTROLS

A. Temporary Support Facilities
    1. Completely remove temporary facilities and materials when no longer required and prior to demobilization.

B. Temporary Controls
    1. Remove temporary controls only when directed by the Owner.

C. Temporary Project Signage
    1. Remove temporary signs upon Substantial Completion, or as otherwise directed by the Owner.

3.04 ATTACHMENTS

A. Temporary Project Signage
    1. The attachment listed below is part of this Specification Section:
        a. Attachment A: Signs for Remedial Programs (two pages).

END OF SECTION

SIGNS FOR REMEDIAL PROGRAMS

Instructions

Signs are required at sites where remedial activities are being performed under one of the following remedial programs: State Superfund, Voluntary Cleanup Program (VCP), Brownfield Cleanup Program (BCP), Environmental Restoration Program (ERP), Brownfield Opportunity Area (BOA) Program (note: activities under this program would be for investigation). The cost of the sign will be borne by the parties performing the remedial activities based on the legal document the activities are being performed under (i.e. volunteers/participants would pay 100% of the cost under the BCP; municipalities would be reimbursed for 90% of the cost under the ERP).

Sign Requirements

Size: Horizontal format - 96" wide by 48" high

Construction Materials: Aluminum or wood blank sign boards with vinyl sheeting.

Inserts: "Site Name", "Site Number", "Name of Party Performing Remedial Activities" and "Municipal Executive".
Indicate position, size and topography for specific inserts.

Color Scheme: Copy surrounding DEC logo - "NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION" - PMS 355

DEC logo: PMS 301 Blue
PMS 355 Green

Text:

Program (choose one):	PMS 301
Brownfield Cleanup Program	
Voluntary Cleanup Program	
Brownfield Opportunity Areas Program	
Petroleum Remediation Program	
State Superfund Program	
1996 Clean Water/Clean Air Bond Act - Environmental Restoration Program	
Site Name, Site Number, Party Performing Remedial Activities	PMS 355
Names of Governor, Commissioner, Municipal Executive	PMS 301
Transform the Past.....Build for the Future	PMS 355

Type Specifications: All type is Caslon 540, with the exception of the logotype.
Format is: center each line of copy with small caps and initial caps.

Production Notes: 96" wide x 48" high aluminum blanks will be covered with vinyl sheeting to achieve background color. Copy and logo will be silk screened on this surface.

See attached format

Program Name

Site Name

Site Number

Name of Party Performing Remedial Activities

Governor
Commissioner
Municipal Executive

Transform the Past....Build for the Future

SECTION 01 62 00

PRODUCT OPTIONS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
   1. This Section includes:
      a. Contractor options for selecting products.
      b. Requirements for consideration of “or-equal” products.

1.02 TERMINOLOGY

A. The following words or terms are not defined but, when used in this Section, have the following meaning:
   1. “Products” includes materials, equipment, machinery, components, fixtures, systems, and other goods incorporated in the Work. Products do not include machinery and equipment used for preparing, fabricating, conveying, erecting, or installing the Work.

1.03 PRODUCT OPTIONS

A. For products specified only by reference standard or description, without reference to supplier, provide products meeting that standard, by a supplier or from a source that complies with the Contract Documents.

B. For products specified by naming one or more products or suppliers, provide the named products that comply with the Contract Documents, unless an “or-equal” or substitute product is approved by Owner and/or the Engineer.

C. For products specified by naming one or more products or suppliers and the term, “or equal”, when Contractor proposes a product or supplier as an “or equal”, submit to Owner and Engineer a request for approval of an “or-equal” product or supplier.

D. For products specified by naming only one product or manufacturer and followed by words indicating that no substitution is allowed, there is no option and no substitution will be allowed.

1.04 “OR-EQUAL” PRODUCTS

A. For proposed products not named in the Contract Documents and considered as an “or equal”, Contractor shall request in writing Owner’s and/or Engineer’s approval of the “or equal”. Request for approval of an “or-equal” product shall accompany the Shop Drawing or product data submittal for the proposed product and shall include:
   1. Contractor’s request that the proposed product be considered as an “or equal”, accompanied by Contractor’s certifications.

2. Documentation adequate to show that proposed product:
   a. Does not require extensive revisions to the Contract Documents.
   b. Is consistent with the Contract Documents.
   c. Will produce results and performance required in the Contract Documents.
   d. Is compatible with other portions of the Work.
3. Detailed comparison of significant qualities of proposed product with the products and manufacturers named in the Contract Documents. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements shown or indicated.
4. Evidence that proposed product manufacturer will furnish warranty equal to or better than specified, if any.
5. List of similar installations for completed projects with project names and addresses, and names and address of design professionals and owners, if requested.
6. Samples, if requested.
7. Other information requested by Owner and/or Engineer.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION (NOT USED)

END OF SECTION

SECTION 01 70 00

EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
   1. This technical specification includes Contractor requirements for conducting the following
      a. Field Engineering: Providing the following field engineering and professional services:
         1) Furnishing civil, structural, and other professional engineering services specified or required to execute Contractor's construction methods.
         2) Developing and making all detailed surveys and measurements throughout the remedial construction required for construction, including slope stakes, batter boards, and all other working lines, elevations, and cut sheets to ensure the proper construction, documentation, and testing of the Work.
         3) Providing materials required for and maintaining (at no additional cost to the Owner) benchmarks, control points, batter boards, grade stakes, and other items.
         4) Performing single beam bathymetric surveys supplemented with hand soundings of the Work Area.
         5) Being solely responsible for all locations, dimensions, and levels. Departure from dimensions and levels required by the Contract Documents is prohibited unless directed or approved by the Owner.
         6) Rectifying all Work improperly installed because of not maintaining, not protecting, or removing without authorization established reference points, stakes, marks, and monuments.
         7) Providing such facilities and assistance necessary for the Engineer to check topography/bathymetry, lines and grade points placed by Contractor.
         8) Installing and removing stable/fixed work platform(s), as appropriate, to facilitate field engineering as no or limited access will be available from the land side during remedial construction.
         9) Conducting pre-dredging, post-dredging, interim backfilling, and post-backfilling survey/bathymetry necessary for determining payment quantities for Unit Price Work and confirming that the bathymetry is accepted by the Owner and Engineer prior to dredging, backfilling, and demobilization.
      b. Protection of Work and Property:
         1) Taking all precautions, providing all programs, and taking all actions necessary to protect the Work and all public and private property and facilities from damage resulting from implementation of the Work.
         2) To prevent damage, injury, or loss, the Contractor's actions must include the following:
            a) Providing suitable storage facilities for materials and equipment subject to damage or degradation by exposure to weather, theft, breakage, or other cause.
            b) Placing upon the Work or any part thereof only loads consistent with the safety and integrity of that portion of the Work and existing construction.
            c) Frequently removing and disposing of refuse, rubbish, scrap materials, and debris caused by the Contractor's operations so that, the Site is maintained in a safe, orderly, and workmanlike appearance.

3) Do not enter or occupy privately-owned land with personnel, tools, materials, or equipment, except on lands and easements with agreements or authorization provided in writing by the Owner.
4) Preserving public and private property and facilities on and adjacent to the Site. Direct or indirect damage done by, or on account of, any act, omission, neglect, or misconduct by the Contractor in executing the Work, will be restored at the Contractor's expense to a condition equal to that existing before damage was done.

c. Cleaning:
1) Cleaning during the Project, at completion of the Work, and as required by this Section.
2) Maintaining in a clean manner the Site, the Work, and areas adjacent to or affected by the Work.

d. Construction Waste Management and Disposal:
1) Recycling non-hazardous, uncontaminated demolition and construction waste.
2) Disposing non-hazardous, uncontaminated demolition and construction waste.
3) Coordinating waste recycling and disposal as specified under this and other Sections.

2. Performance Requirements:
a. Practice efficient waste management in using materials in the Work.
b. Employ reasonable means to divert demolition and construction waste from landfills and incinerators. Facilitate recycling of materials, including the following:
1) Demolition/Debris Waste:
a) Concrete.
b) Concrete reinforcing steel.
c) Wooden piles.
d) Brick.
e) Concrete masonry units.
f) Structural steel and miscellaneous steel and metal.
g) Abandoned metal piping
h) Debris associated with sunken barges
2) Construction Waste:
a) Site-clearing waste.
b) Trees and shrubs cleared to facilitate completion of Work.
c) Packaging:
- Paper
- Cardboard and boxes
- Pallets and wood crates.
3) Dispose of demolition and construction waste only at Owner-approved facilities.

3. Closeout Requirements:
a. Provisions of this section apply to the procedural requirements for closeout of Work executed by the Contractor.

4. Project Record Documents:
a. Provide all labor, materials, equipment, and services to maintain and submit project record documents to the Owner and Engineer in accordance with the Contract Documents.

B. Related Sections
1. Section 01 11 00 – Summary of Work
2. Section 01 30 00 – Administrative Requirements
3. Section 01 33 00 – Submittal Procedures
4. Section 01 50 00 – Temporary Facilities and Controls
5. Section 01 70 00 – Execution and Closeout Requirements
6. Section 31 00 00 – Earthwork

7. Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal
8. Section 35 31 16 – NAPL Barrier Wall and Collection System
9. Owner's Supplemental Construction Contract Requirements (SCCR)

C. Terminology
   1. The following words or terms are not defined but, when used in this Section, have the following meaning:
      a. "Construction waste" is building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
      b. "Disposal" is removal to an off-site location of demolition and construction waste and subsequent sale, recycling, reuse, or placement in an Owner-approved landfill or incinerator facility conforming to Laws and Regulations and acceptable to authorities having jurisdiction.
      c. "Recycle" is recovery of demolition waste or construction waste for subsequent processing in preparation for reuse.
      d. "Recycle and reuse" is recovery of demolition waste or construction waste and subsequent processing and reuse in the Work.

1.02 QUALITY ASSURANCE

A. Field Engineering
   1. References:
      a. Hydrographic surveying Engineering Manual, EM 1110-2-1003 prepared by United States Army Corps of Engineers (USACE) and dated November 30, 2013. The most recent version of this reference applies.
   2. Qualifications:
      a. Contractor Field Engineer:
         1) Employ and retain at the Site a field engineer with experience and capability of performing all field engineering tasks required of Contractor.
         2) Responsibilities include, but are not necessarily limited to, the following:
            a) Maintaining field office files, drawings, and record documents, and coordinating field services with subcontractors and suppliers as appropriate. Preparing layout and coordination drawings for construction operations.
            b) Checking and coordinating the Work for conflicts and interferences, and immediately advising the Owner and Engineer of all discrepancies of which Contractor is aware.
            c) Cooperating as required with the Owner and Engineer in observing the Work and performing field inspections.
            d) Reviewing and coordinating the Work with Shop Drawings and Contractor's other submittals.
      b. Surveyor:
         1) Employ or retain the services, as needed, at the Work Area a surveyor with experience and capability of performing surveying and layout tasks required in the Contract Documents and as required for the Work. Surveyor shall be a professional land surveyor licensed and registered in the State of New York (if performing a topographic survey) and Nationally Certified Hydrographer (if performing a bathymetric survey). Surveyor shall be authorized under Laws and Regulations to practice surveying and have actively engaged in topographic (if performing topographic survey) and bathymetric (if performing bathymetric survey) operations during the past 3 years.
         2) Responsibilities include, but are not necessarily limited to, the following:
            a) Providing required surveying equipment and surveying accessories in good working order.

b) Being proficient in proper survey equipment operation and maintenance.
c) Establishing required lines and grades for performing all excavation, backfilling, compacting, and grading, and constructing all facilities, structures, pipelines, and site improvements.
d) Preparing and maintaining professional-quality, accurate, well organized, legible notes of all measurements and calculations made while surveying and laying out the Work.
e) Performing such surveys and computations necessary to determine quantities of Work performed, placed, or installed.
f) Performing such surveys necessary to record actual construction, including demolition, excavation, dredging, NAPL barrier wall location and elevation, backfilling, and restoration operations.
g) Prior to backfilling operations, surveying, locating, and recording on a copy of the Contract Documents accurate representation of buried Work and Underground Facilities encountered.
h) Preparing certified survey drawings in accordance with Part 1.04 B.3. of this Section.
i) Complying with requirements of the Contract Documents relative to surveying and related Work.

c. The Contractor must use dredging equipment equipped with Real-Time Kinematic and Differential GPS (RTK-DGPS) and the necessary sensors to facilitate accurate horizontal and vertical positioning of the dredge bucket with depth control and dredge progress tracking as detailed in Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal.

B. Cleaning
1. Reference Standards
a. The following standards are referenced in this Section:
1) NFPA 241, Safeguarding Construction, Alteration, and Demolition Operations.
2. Progress Cleaning
a. General: Clean the Site, work areas, and other areas occupied by the Contractor at least weekly. Dispose of materials in accordance with the following:
1) Comply with NFPA 241 for removing combustible waste materials and debris.
2) Do not hold non-combustible materials at the Site more than three days if the temperature is expected to rise above 80 degrees F. When temperature is less than 80 degrees F, dispose of non-combustible materials within seven days of their generation.
3) Provide suitable containers for storage of waste materials and debris.
4) Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately.
b. Site:
1) Keep outdoor, dust-generating areas wetted down or otherwise control dust emissions in accordance with Section 01 50 00 – Temporary Facilities and Controls.
c. Work Areas:
1) Clean areas where the Work is in progress to level of cleanliness necessary for proper execution of the Work.
2) Remove liquid spills promptly and immediately report spills to Owner and Engineer, and authorities having jurisdiction.
d. Concealed Spaces:
1) Remove debris from concealed spaces before enclosing the space.
e. Installed Work:
1) Keep installed Work clean.

2) Clean installed surfaces according to written instructions of manufacturer or fabricator of material or equipment installed, using only cleaning agents and methods specifically recommended by material or equipment manufacturer. If manufacturer does not recommend specific cleaning agents or methods, use cleaning agents and methods that are not hazardous to health and property and that will not damage exposed surfaces.

f. Exposed Surfaces:
   1) Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration until Substantial Completion.

g. Waste Disposal:
   1) Properly dispose of waste materials, surplus materials, debris, and rubbish off the Site.
   2) Do not burn or bury rubbish or waste materials at the Site.
   3) Do not discharge wastes or hazardous substances (e.g., mineral spirits, oil, paint thinner) into surface waters or drainage routes.

h. The Contractor will be solely responsible for complying with Laws and Regulations regarding storing, transporting, and disposing of waste.

i. During handling and installation of materials and equipment, clean and protect construction in progress and adjoining materials and equipment already in place. Apply protective covering where required for protection from damage or deterioration, until Substantial Completion.

j. Clean completed construction as frequently as necessary throughout the construction period.

3. Closeout Cleaning
   a. Complete the following prior to requesting inspection for Substantial Completion:
      1) Clean and remove from the Site rubbish, waste material, debris, and other foreign substances.
      2) Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
      3) Leave surface waterways, drainage routes, storm sewers, and gutters open and clean.
      4) Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, and similar spaces.
      5) Remove non-permanent tags and labels.
      6) Leave the Site clean, and in neat, orderly condition, satisfactory to Owner and Engineer.

C. Construction Waste Management and Disposal
   1. Performance Requirements:
      a. Practice efficient waste management in using materials to complete the remedial construction.
      b. Employ reasonable means to divert demolition and construction waste from landfills and incinerators. Facilitate recycling of materials, including the following:
         1) Construction Waste:
            a) Site-clearing waste.
            b) Trees and shrubs cleared to facilitate completion of Work.
            c) Packaging:
               1. Paper.
               2. Cardboard and boxes.
               3. Pallets and wood crates.
      c. Dispose of construction waste only at Owner-approved facilities.
   2. Regulatory Requirements:
      a. Comply with hauling and disposal Laws and Regulations of authorities having jurisdiction.

3. Delivery, Storage, and Handling:
    a. Recyclable Waste: Remove all recyclable materials from the work area in acceptable containers daily.
    b. Provide separate collection containers as required by recycling haulers and to prevent contamination of materials, including protection from the elements as applicable.
    c. Replace loaded containers with empty containers as demand requires, at least weekly.
    d. Handling: Deposit recyclable materials in containers in clean (no mud, adhesives, solvents, or petroleum or coal tar contamination), debris-free condition.
    e. If contamination chemically combines with materials so that materials cannot be cleaned, do not deposit into recycle containers.
    f. Environmental Requirements: Transport recyclable waste materials from the work area to recycling containers, and carefully deposit in containers in manner to minimize noise and dust. Close the covers of container immediately after materials are deposited. Do not place recyclable waste materials on the ground adjacent to container.

D. Closeout Requirements
    1. Inspection Procedures
        a. Substantial Completion:
            1) Preliminary Procedures: Complete the following prior to requesting an inspection for Substantial Completion:
                a) Prepare and submit to the Engineer and Owner a list of items to be completed and corrected, including the value of the items on the list, and the reasons why the items are not completed.
                b) Correct items on the “punch list”.
                c) Advise the Engineer, in writing, of pending insurance changeover requirements, if applicable.
                d) Terminate and remove from the Site temporary facilities, including mockups, construction tools, and similar elements, as necessary.
                e) Complete grading, restoration, and final cleaning.
            2) Inspection: Submit a written request for inspection for Substantial Completion. On receipt of the request, the Engineer will proceed with the inspection or notify the Owner of unfulfilled requirements. The Engineer will prepare the Certificate of Substantial Completion after inspection or will notify the Construction Manager of items, either on the Contractor's list or additional items identified by the Engineer, that must be completed or corrected before the Certificate of Substantial Completion will be issued. Any outstanding items required for Substantial Completion at this time will be documented as the formal punch-list for Substantial Completion:
                a) Re-inspection: Request re-inspection when the punch-list is completed or corrected.
                b) Results of completed inspection will form the basis of requirements for Final Completion.
        b. Final Acceptance:
            1) Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:
                a) Submit a Request for Payment
                b) Submit a Certification to the Owner stating that all items, actions, and requirements of the punch-list have been completed, corrected, satisfied, or otherwise resolved.
            2) Inspection: Submit a written request for final inspection for acceptance. The Engineer will prepare a Recommendation of Final Payment after inspection or

will notify the Owner of work that must be completed or corrected before the Certificate will be issued.

1.03 SUBMITTALS

A. Field Engineering
   1. Informational Submittals:
      a. Procedure Submittals: Submit acceptable plan for conducting all survey Work as part of the Contractor's Project Operations Plan as described in Section 01 11 00 – Summary of Work.
      b. Surveying:
         1) Survey Control Plan - for conducting survey work for record surveys and progress surveys, submitted ten days prior to beginning survey Work. Plan must include:
            a) Identification (name, address, and affiliation) of licensed Professional Land Surveyor and Engineer.
            b) Grid layout/tracklines and proposed identification scheme for nodes/tracklines to be surveyed as part of Work.
            c) Specifications for survey equipment used in performing surveys.
            d) Specifications for equipment positioning and visualization software, if used for progress reporting.
            e) Contractor's proposed method for recording survey data for excavation areas.
         2) Example of proposed survey field books to be maintained by Contractor's surveyor. Example must have sufficient information and detail, including example calculations and notes, to demonstrate that field books will be organized and maintained in a professional manner, complying with the Contract Documents.
         3) Submit survey and bathymetry data in x, y, z (easting, northing, elevation) format. Each data file must include a descriptive header including, but not limited to:
            a) software and equipment information
            b) horizontal and vertical datum
            c) units
            d) survey type
            e) alignment
            f) stations surveyed
         4) Submit a copy of the survey drawing with contour data in a format compatible with AutoCAD 2020 and PDF.
         5) Submit certified survey in accordance with this Section.
      c. Qualifications Statements:
         1) Contractor Field Engineer: Submit name and address of field engineer.
         2) Surveyor: Submit name(s) and address(es) of firm(s) and resumes of each professional land surveyor (or professional hydrographer) and crew chief conducting the survey Work. Submit at least 10 days prior to beginning survey Work. During the Project, submit resume for each new registered land surveyor (or hydrographer) and crew chief employed or retained by Contractor at least 10 days prior to starting on the survey Work.
      d. Certificates:
         1) Field Engineering: When requested by the Engineer, submit documentation verifying accuracy of field engineering.
         2) Surveying: Submit certificate signed by professional surveyor (or professional hydrographer) certifying that elevations and locations of the Work comply with the Contract Documents. Explain all deviations, if any.

B. Protection of Work and Property
   1. Action Submittals:
      a. Utility verification: Provide written documentation that utility verification activities have been completed in accordance with this Section.

C. Waste Management and Disposal
   1. Informational Submittals:
      a. Waste Management Plan: Include plans for managing and disposing all waste streams to be generated during the remedial construction including those covered under Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal
         1) Submit acceptable plan for managing waste within 14 days of the date the Contract Times commence running, and before removing any waste from the Site. Include the following:
            a) For materials that will be recycled and reused in the Work, procedures and equipment for preparing recycled materials before incorporating them into the Work.
            b) Procedures for separating each type of recyclable waste, including sizes of containers, container labeling, and designated location at the Site where materials will be separated and stored.
            c) List of local, Owner-approved disposal facilities that will be used for demolition and construction waste. Include name, address, and telephone number of each recycling or processing facility, landfill, and incinerator facility. Identify type of waste to be disposed of at each facility.
      b. Waste Profiles:
         1) Preliminary Waste Profiles: The Contractor is responsible for characterizing all waste materials and obtaining waste profile(s) from the proposed disposal facility(ies). The Contractor shall prepare and submit waste profiles, listing Owner's name and address of the Site as generator of waste, for each landfill and treatment facility. Owner will sign and return each acceptable waste profile to the Contractor.
         2) Final Waste Profiles: Submit counter-signed waste profile and proof of acceptance of waste for each landfill and incinerator facility.
         3) State Use/Disposal Determination or Approvals: Provide all correspondence, approvals, and paperwork related to State waste use or disposal determinations and/or approvals.
      c. Disposal Records:
         1) Recycling and Processing Facility Records: Submit to the Owner and Engineer counter-signed manifests/bills of lading, weight tickets, receipts, and invoices on a monthly basis throughout the Project, and concurrent with each Application for Payment.
         2) Landfill and Treatment Facility Records: Submit to the Owner and Engineer counter-signed manifests/bills of lading, weight tickets, receipts, and invoices on a monthly basis throughout the Project, and concurrent with each Application for Payment.

D. Closeout Requirements
   1. Provide all documentation pertaining to executed components of the Work and that require inspection prior to submitting an application for Final Certification Inspection including, but not limited to, tables showing actual dredged and backfilled volumes, Construction Drawings, certified survey data, executed warranties, certified weigh slips from the disposal facility, maintenance agreements, inspection certificates and similar required documentation for specific units of Work.

2. Barge volume counts and measurement summary. Following completion of construction and as a pre-requisite for Final Certification Inspection, provide the Engineer with final barge volume counts and measurement summary tables. Provide supporting data that was used to develop the measurement summary tables in accordance with Part 1.04 A of this Section.
3. Prepare and submit all Project Record Documents in accordance with Part 1.04 B of this Section.

E. Project Record Documents
   1. Construction Submittals:
      a. Record Documents: Submit all required record documents in accordance with Section 01 33 00 – Submittal Procedures.
   2. Closeout Submittals:
      a. Project Record Documents: Submit in accordance with Part 1.04 B.3. of this Section.
   3. Record Document Submittal:
      a. Prior to readiness for final payment, submit to Owner one copy of the following record documents:
         1) Drawings.
         2) Specifications and Addenda.
      b. Submit record documents with transmittal letter on Contractor letterhead complying with letter of transmittal requirements in Section 01 33 00 – Submittal Procedures.
      c. Record document submittal must include verification, with original signature of an official authorized to execute legal agreements on behalf of Contractor, reading as follows:

         "[*Insert Contractor's corporate name*] has maintained and submitted record documentation in accordance with Section 01 70 00 – Execution and Closeout Requirements and other elements of Contract Documents, for the Former Pemart Avenue MGP Works Remedial Activities in Peekskill, Westchester County, New York. We certify that each record document submitted is complete, accurate, and legible relative to the Work performed under our Contract, and that the record documents comply with the requirements of the Contract Documents.

         [*Provide signature, print name, print signing party's corporate title, and date*]"

1.04 DOCUMENTATION AND RECORDS

A. Field Engineering
   1. Maintain at the Site a complete and accurate control and survey log as Work progresses.
      a. Survey data must be in accordance with recognized professional surveying standards, Laws and Regulations, and prevailing standards of practice in the locality where the Site is located. Original field notes, computations, and other surveying data must be recorded by Contractor's surveyor in Contractor-furnished hard-bound field books and must be signed and sealed by Contractor's surveyor. The Contractor is responsible for the completeness and accuracy of survey Work, and completeness and accuracy of survey records, including field books. Failure to organize and maintain survey records in an appropriate manner that allows reasonable and independent verification of calculations, and to allow identification of elevations, dimensions, and grades of the Work, must be cause for rejecting the survey records, including field books.
      b. Illegible notes or data, and erasures on any page of field books, are unacceptable. Do not submit copied notes or data. Corrections by ruling or lining out errors will be unacceptable unless initialed by the surveyor. Violation of these requirements may require re-surveying the data questioned by Engineer.

B. Project Record Documents
   1. Maintenance of Record Documents
      a. Maintain in Contractor's field office, in clean, dry, legible condition, complete sets of the following record documents:
         1) Drawings, Specifications, and Addenda.
         2) Shop Drawings, Samples, and other Contractor submittals, including records of test results, approved or accepted as applicable, by the Engineer.
         3) Change Orders, Work Change Directives, Field Orders, copies of all interpretations and clarifications issued, photographic documentation, survey data, and all other documents pertinent to the Work.
      b. Provide files and racks for proper storage and easy access to record documents. File record documents in accordance with the edition of the Construction Specification Institute's "MasterFormat" used for organizing the Project Manual, unless otherwise accepted by Owner.
      c. Make record documents available for observation and review upon request of the Engineer, the Owner, and/or Regulators.
      d. Do not use record documents for any purpose other than serving as Project record. Do not remove record documents from Contractor's field office without Owner's approval.
   2. Recording Changes
      a. General:
         1) At the start of the Project, label each record document to be submitted as, "PROJECT RECORD" using legible, printed letters.
         2) Keep record documents current. Make entries on record documents within two working days of receipt of information required to record the change.
         3) Do not permanently conceal the Work until required information has been recorded.
         4) Accuracy of record documents must be such that future searches for items shown on the record documents may rely reasonably on information obtained from Engineer-accepted record documents.
         5) Marking of Entries:
            a) Use erasable, colored pencils (not ink or indelible pencil) for marking changes, revisions, additions, and deletions to record documents.
            b) Clearly describe the change by graphic line and make notations as required. Use straight edge to mark straight lines. Writing must be legible and sufficiently dark to allow scanning of record documents into legible electronic files in portable document format (".pdf").
            c) Date each entry on record documents.
            d) Indicate changes by drawing a "cloud" around the change(s) indicated.
            e) Mark initial revisions in red. In the event of overlapping changes, use different colors for subsequent changes.
      b. Drawings:
         1) Record changes on copy of the Design Drawings. Submittal of Contractor-originated or produced drawings as a substitute for recording changes on a copy of the Design Drawings is unacceptable.
         2) Record changes on plans, sections, elevations, schematics, and details as required for clarity, making reference dimensions and elevations (to Project datum) for complete record documentation.
         3) Record actual construction including:
            a) Depths of Work elements relative to Project datum.
            b) Horizontal and vertical location of Underground Facilities referenced to permanent surface improvements and project elevation datum.

c) Horizontal and vertical locations of installations of any kind or description known to exist within the Work area. Locations must include dimensions of permanent features.
d) Field changes of dimensions, elevations, arrangements, and details.
e) Changes made in accordance with Change Orders, Work Change Directives, and Field Orders.
f) Changes in details on the Design Drawings. Submit additional details prepared by the Contractor when required to document changes.

c. Supplemental Drawings:
1) In some cases, drawings produced during construction by the Engineer or Contractor supplement the Design Drawings and must be included with record documents submitted by the Contractor. Supplemental record drawings must include the following:
a) Drawings provided with Change Orders, Work Change Directives, and Field Orders.
b) Drawings that cannot be incorporated into the Design Drawings due to space limitations.
c) Certified survey drawings, in accordance with Part 1.04 B.3. of this Section.
2) Supplemental drawings provided with record drawings must be integrated with the Design Drawings and include necessary cross-references between drawings. Supplemental record drawings must be on sheets the same size as the Design Drawings.
3) When supplemental drawings developed by the Contractor using computer-aided drafting/design (CADD) software are to be included in Record Drawings, submit electronic files for such drawings in AutoCAD 2007 and portable document format (".pdf") as part of record drawing submittal. Submit electronic files on compact disc labeled, "Supplemental Record Drawings", with Contractor name, Project name, and Contract name and number.

d. Specifications and Addenda:
1) Mark each Section to record:
a) Manufacturer, trade name, catalog number, and Supplier of each product and item of equipment provided.
b) Changes made by Addendum, Change Orders, Work Change Directives, and Field Orders.

3. Certified Survey Drawings
a. Prepare the following survey drawings:
1) Pre-Construction Survey, depicting the pre-construction Site conditions (i.e., based on upland topographic and in-river bathymetric surveys).
2) Post-Removal Survey, depicting the final horizontal and vertical limits of dredging for each removal area, including subgrade spot elevations and bathymetric/ topographic contours.
3) Interim Post-Backfill Surveys, to determine quantities for payment (i.e., following sand/organoclay backfill placement)
4) Post-Construction Survey, depicting final (post-construction) Site conditions (i.e., based on upland topographic and in-river bathymetric surveys).

b. Drawing Requirements:
1) General Content:
a) Property lines, easements, and rights-of-way.
b) Bathymetric/topographic contours at minimum one-foot intervals.
c) Horizontal and vertical location of buildings, foundations, and walls.
d) Horizontal location of exposed piping and utilities, poles, exposed wires, posts, signs, markers, curbs, fencing, gates, guard rails, guard cables, and other facilities visible at or above ground surface.

e) Horizontal limits of lawns, pavements, roads, walks, drives, and other surface improvements.
f) Horizontal and vertical location of monitoring wells, including ground surface elevation, outer casing elevation, and inner casing elevation.
g) Horizontal location, size (diameter), and species of trees and other plantings.

2) Scale: One-inch equals 20 feet.
3) Sheet Size: 34 inches wide by 22 inches high.

c. Electronic Survey File
1) Include surfaces, point groups, and other civil data included with the file in Civil 3D.

d. Certification:
1) Each survey drawing must be signed and sealed by a professional land surveyor licensed and registered in the State of New York (if performing a topographic survey) or Nationally Certified Hydrographer (if performing a bathymetric survey).

4. Electronic Files Furnished by Engineer
a. The Engineer will provide CADD files of the drawings upon the following conditions:
1) Contractor must submit to Engineer a letter on Contractor letterhead requesting CADD files of the Drawings and providing specific definition(s) or description(s) of how files will be used.
2) Layering system incorporated in CADD files must be maintained as transmitted by Engineer. CADD files transmitted by Engineer containing cross-referenced files must not be bound by the Contractor. Drawing cross-references and paths must be maintained. If the Contractor alters layers or cross-reference files, restore all layers and cross-references prior to submitting record documents to Design Engineer.
3) Submit record drawings to Engineer in same CADD format that files were furnished to the Contractor.

PART 2– PRODUCTS (NOT USED)

PART 3– EXECUTION

3.01 SURVEYING

A. Field Engineering
1. Verification of Conditions: Verify Site conditions before starting Work. Promptly notify the Owner and Engineer of any discrepancies with the potential to affect the Work.
2. Reference Points:
a. Established reference points damaged or destroyed by Contractor will be re-established by Owner at Contractor's expense.
b. Establish lines, grades, and elevations necessary to control the Work from established reference points. Obtain measurements required for executing the Work to tolerances specified in the Contract Documents.
c. Establish, place, and replace as required, such additional stakes, markers, and other reference points necessary for control, intermediate checks, and guidance of construction operations.
3. Coordinate System and Reference Datums: Comply with the following:
a. Coordinate System: New York State Plane Coordinate System of 1983, New York East Zone FIPS 3101.
b. Reference Datums:
1) Horizontal: North American Datum of 1983.
2) Vertical: North American Vertical Datum of 1988.

4. Surveys to Determine Quantities for Payment:
    a. For each Application for Payment, perform such surveys and computations necessary to determine quantities of Work performed, placed, or installed. Perform surveys necessary for the Owner and Engineer to verify final quantities of Work performed or in place.
    b. Quantities for final payment will be based on certified survey performed using conventional survey methods (i.e., a combination of land-based and bathymetric survey methods) and using HYPACK® TIN MODEL compatible with Civil 3D 2019. If multiple survey methods are used to complete the Construction Surveying as described in Part 3.01 A. 6., the Contractor will be responsible for compiling/ combining survey data to meet the requirements presented herein.
    c. Notify Engineer at least 24 hours before performing survey services for determining quantities. Unless waived in writing by Engineer, perform quantity surveys in presence of Engineer.
5. Survey for Progress Reporting:
    a. Include in Contractor's daily reports information on progress of sediment removal and backfill as appropriate. See Section 01 30 00 – Administrative Requirements. of Measure sediment removal and backfill progress activities using conventional survey techniques, equipment positioning and visualization software, or other method approved by the Engineer.
    b. Conduct and document the positioning and visualization software equipment manufacturer recommended quality control procedures, if used.
6. Construction Surveying: Comply with the following:
    a. Conduct bathymetric surveys with a single beam acoustic echo sounder coupled with Real Time Kinematic Global Positioning System and hand soundings. Tracklines will be a maximum of 10 feet apart with soundings every 25 feet.
    b. Conduct topographic surveys on a 10- by 10-foot grid or wherever the elevation changes more than 1 foot. Survey will document location of grade breaks and edges of dredge areas as appropriate.
    c. Construction surveying using RTK-DGPS enabled excavation equipment (i.e., RTK-DGPS dredge positioning system) WILL NOT be accepted for payment quantities.
    d. Pre-Construction Survey: Perform pre-construction survey of Work Limits (as defined on the Design Drawings).
        1) Include location of structures adjacent to the dredge area, including but not limited to the proposed layout for the NAPL barrier wall, select structures in Peekskill Landing Park - steel foot bridge, gazebo in northern portion of park, fence separating park from triangle parcel, and edge of paved walkway between the gazebo and the steel deck bridge.
        2) Complete a bathymetric survey covering the extent of the sediment removal area including a minimum 50-foot buffer extending beyond the delineated sediment removal area.
        3) Prepare a survey drawing including the pre-construction sediment elevation contours.
        4) Prepare a TIN model for the proposed limits and depths relative to the pre-construction bathymetric survey compatible with the dredge positioning system as specified in Section 35 20 23 - Mechanical Dredging, Backfill and Material Handling and Disposal
        5) Submit the pre-construction survey and TIN model to the Owner and Engineer at least 2 weeks prior to start of dredging.
    e. Post-Removal Survey: Perform post-removal survey following completion of sediment removal activities.
        1) Include top of sediment dredging area contours to target elevations and tables showing actual removal volumes.
        2) Submit to Owner and Engineer prior to the start of backfilling operations.

3) Do not commence backfilling operations to install the cover system until the Owner and Engineer review post-removal survey.
4) No additional payment will be made for multiple post-removal surveys (i.e., if additional survey is required to confirm removal limits have been achieved).

f. Interim Post-Backfill Surveys: Perform interim post-backfill surveys as necessary to provide basis for payment.
1) Include bathymetry and topography (as appropriate) showing confirmation that backfill was installed to specified elevations and tables showing actual backfill volumes.
2) Do not place additional backfill over interim fill (e.g., placing river backfill over sand backfill/organoclay) until Owner and Engineer have reviewed and approved interim survey.

g. Post-Construction Survey: Perform post-construction survey following completion of backfilling activities.
1) Include bathymetry and topography showing confirmation that backfill was installed to specified elevations and tables showing actual backfill volumes.
2) Submit drawings to the Owner and Engineer not more than 2 weeks after completion of the post-construction survey.
3) Do not commence demobilization activities until Owner and Engineer review post-construction survey and Owner provides authorization for demobilization. No additional payment will be made for multiple post-construction surveys (i.e., if additional survey is required to confirm backfill limits have been achieved).

h. Perform post-removal, interim post-backfill, and post-construction surveys using the same control points and survey requirements as the pre-construction survey. Survey additional locations as necessary to document location of grade breaks, edge of dredge area, and other significant features.

7. Accuracy:
a. For topographic surveys:
1) Horizontal accuracy must be plus or minus 0.1 feet.
2) Vertical accuracy must be plus or minus 0.05 feet for general site grading and 0.02 feet for structural features unless otherwise specified or approved by Engineer.

b. Bathymetric survey accuracy must be in accordance with Chapter 4 of the Hydrographic Surveying Engineering Manual. Measurements will be made to the nearest 0.1 foot in horizontal and vertical.
c. Survey calculations must include an error analysis sufficient to demonstrate required accuracy.
d. Conduct bathymetric survey as close as possible to high tide to allow maximum water depth and, thus, survey coverage.
e. Ensure that the combination of land-based and bathymetric surveys do not leave any data gaps between upland and below water areas.

3.02 PROTECTION OF STRUCTURES

A. Protection of Work and Property
1. Protection of Existing Structures
a. General:
1) Subsurface structures and Underground Facilities known to the Owner and Engineer, except water, gas, sewer, electric, and communications services to individual buildings and properties, are shown in the Design Drawings. Information shown for Underground Facilities is the best available to the Owner and Engineer but is not guaranteed to be correct or complete. The sizes, locations, and alignments shown are approximate and require verification by the Contractor.

2) Subsurface structures and facilities may be located within the Project Work Limits that are either not identified or not accurately shown on the Design Drawings. Verify the accuracy and completeness of the information shown on the Design Drawings.
3) Aboveground structures and facilities may be located near the Project Work Limits that are either not identified or not accurately shown on the Design Drawings. Verify the accuracy and completeness of the information shown on the Design Drawings.

b. Underground Facilities:
1) Protect and maintain aboveground and underground utilities during construction and pay for an repairing any damage caused to these utilities due to the Work.
2) Verify the location of all aboveground and underground utilities in the field prior to commencing construction. The following actions (lines of evidence) are required prior to completing work, if one (1) or more of these cannot be completed, a minimum of one (1) additional line of evidence must be used:
a) Contact New York Dig Safely.
b) Determine correct field location of all nearby underground and aboveground facilities by obtaining detailed Site utility plan drawn to scale (as-built) or contact representatives of the respective public utilities and private companies and request that they physically mark the locations of any and all lines within the Project Work Limits 14 days prior to the Contractor conducting Work.
c) Provide services of a third-party utility locator to perform subsurface clearance prior to initiating subsurface activities.
d) Conduct detailed visual Site inspection for evidence of underground and overhead utilities.
3) Explore ahead of excavation Work and uncover obstructing Underground Facilities sufficiently to determine their location, to prevent damage to Underground Facilities, and to prevent service interruption to buildings or parcels served by Underground Facilities. If the Contractor damages an Underground Facility, the Contractor must restore it to original condition, in accordance with requirements of the owner of the damaged facility and the General Conditions.
4) The Owner may direct necessary changes in the location of the Work to avoid Underground Facilities not shown or indicated on the Contract Documents.
5) If permanent relocation of existing Underground Facilities is required and is not otherwise shown or indicated in the Contract Documents, Owner will direct the Contractor in writing to perform the Work. When the relocation Work results in a change in the Contract Price, Contract Time, contract modification procedures and payment for such Work must be in accordance with the Contract Documents and as stipulated in the Owner's Supplemental Construction Contract Requirements (SCCR).

c. Surface Structures:
1) Surface structures are existing buildings, structures, and other facilities at or above ground surface, including their foundations or any extension below ground surface. Surface structures include, but are not limited to, buildings, bridges, aqueducts, piers, fender piles, CSO outfalls, bulkhead walls, tanks, walls, roads, dams, channels, open drainage channels, exposed piping and utilities, poles, exposed wires, posts, signs, markers, curbs, walks, fencing, monitoring wells, and other facilities visible at or above existing grade.

d. Protection of Underground Facilities and Surface Structures:
1) Sustain in their places and protect from direct or indirect damage all Underground Facilities and surface structures located within or adjacent to the Project Work Limits. Such sustaining and supporting must be done carefully and as required by the party owning or controlling such structure or facility. Obtain

approval of the proposed methods and procedures for sustaining or supporting each structure or facility from the structure or utility owner and provide proof of approval to the Owner before proceeding with the Work.

2) The Contractor bears all risks related to the presence or proximity of all Underground Facilities and surface structures within or adjacent to the Work limits, in accordance with the Contract Documents. The Contractor is responsible for damage and expense for direct or indirect damage to structures and facilities caused by their Work. The Contractor must immediately repair damage caused by their Work, to the satisfaction of the damaged structure or facility owner.
3) Notify the Owner and Engineer if utility-related objects are discovered during construction activities that were not previously identified.
4) In the event the Contractor fails to observe and protect identified aboveground or underground facilities, and such facilities are damaged or destroyed by the Contractor's operations, the Contractor will be responsible for any and all direct, indirect, or consequential costs incurred as a result of such failure. Furthermore, in such event, Owner may direct the Contractor to make immediate permanent or temporary repairs of damaged facilities at the Contractor's sole expense, or the Owner may elect to have the repairs performed by others, with the cost to be paid by the Contractor and deducted from payment otherwise due to the Contractor.

e. Coordinate Work in Article 3.02 of this Section with Sections 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal and 35 31 16 – NAPL Barrier Wall and Collection System.

2. Protection of Installed Construction
   a. General:
      1) Provide final protection and maintain conditions to ensure that installed Work is without damage or deterioration for the duration of the Work.
      2) Use equipment and procedures that prevent damage to all specified installed constructed components.
      3) The Contractor must, at their own cost and expense, sustain in their places and permanently protect from direct or indirect damage any and all utilities, structures, and property in the vicinity of their work, whether over or underground, or that appear within excavations. The Contractor will assume all costs and expenses for direct or indirect damage that may occur.
      4) Notify the Owner and Engineer and confirm existing facilities that have been identified for protection prior to performing any disturbance activities within the Project Work Limits. The Engineer may designate other adjacent features for protection if deemed appropriate.

3.03 WASTE MANAGEMENT AND DISPOSAL

A. Construction Waste Management and Disposal
   1. Waste Management
      a. Provide handling, containers, storage, signage, transportation, and other items required to manage wastes during the Project.
      b. Site Access and Temporary Controls:
         1) Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent facilities.
            a) Designate and label specific areas of the Site, scows or portions of the transport barge as necessary for separating materials to be recycled or reused.
            b) Provide temporary controls in accordance with Section 01 50 00 – Temporary Support Facilities and Controls and the Contract Documents.

c. Shipping Documents: Prepare a non-hazardous waste manifest for each shipment of demolition and construction waste. Owner or an authorized agent will review and sign each manifest as generator of waste.
d. Woody debris, piles, and metal are expected to be encountered in the dredge areas during the Work. The Contractor shall remove, segregate debris from sediment in the transport barge, and downsize debris as necessary for recycling or disposal at an Owner-approved facility.

2. Recycling Waste
   a. General:
      1) Recycle paper and beverage containers used by the Contractor's personnel, Subcontractors, and Suppliers.
      2) Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at the Site to the maximum extent practical.
         a) Provide appropriately marked containers or bins for controlling recyclable waste until recyclable materials are removed from the Site. Post list of acceptable and unacceptable materials at each container and bin. Inspect containers and bins for contamination and remove contaminated materials if found.
         b) Before removing from the Site, prepare and process recyclable waste as required by recycling or processing facility.
         c) Stockpile processed materials at the Site without intermixing with other materials. Place, grade, and shape stockpiles to drain water. Cover to prevent dust and blowing debris. Stockpile materials away from the construction area. Do not store within drip line of trees.
         d) Remove recyclable waste from the Project Area and from Owner's property and transport to Owner-approved recycling or processing facility.
   b. Recycling Construction Waste
      1) Site-Clearing Wastes:
         a) Cut trees, branches, shrubs, brush, and logs into manageable lengths.
         b) If required by recycling or processing facility, chip trees, branches, shrubs, brush, and logs before removing from the Site.
      2) Packaging:
         a) Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store at dry location.
         b) Pallets: Require that goods delivered on pallets have the pallets removed from Site, to the extent possible. For pallets that remain at the Site, break down pallets into component wood pieces. Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, and treated wood materials.
         c) Crates: Break down crates into component wood pieces. Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, and treated wood materials.

3. Waste Disposal
   a. General: Except for items or materials to be recycled or recycled and reused, remove from the Site and properly dispose of waste at Owner-approved facility such as permitted landfill or treatment facility, or other method acceptable to Owner and authorities having jurisdiction.
      1) Except as otherwise specified, remove from the Site all waste and debris from the Work as it accumulates. Upon completion of the Work, remove materials, equipment, waste, and debris and leave the Site clean, neat, and orderly. Comply with the Contract Documents regarding cleaning and removal of trash, debris, and waste.
      2) Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

b. Burning: Do not burn waste materials at the Site.

3.04 FINAL CLEANING

A. Closeout Requirements
   1. At the time of project closeout, clean and restore the Work area to its pre-construction condition. Complete the following operations before requesting the Engineer's inspection for certification of substantial completion:
      a. Remove non-permanent protection and labels.
      b. Remove debris.
      c. Inspect Project Work Limits.

END OF SECTION

SECTION 02 21 19

STRUCTURAL SURVEYS

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
   1. Providing all labor, materials, equipment, professional services, and incidentals as specified and required to perform structural surveys.
   2. The Work includes, but is not limited to, performing pre-construction and post-construction structural surveys of the following:
      a. Metro North Railroad tracks located adjacent to sediment dredging activities and barrier wall and trench installation activities.
      b. Structures present on Peekskill Landing Park property including existing pavement and roadway appurtenances of adjacent walkway, gazebo, steel footbridge, and any other aboveground structures (buildings, fences) located within 50 feet of the proposed dredging, excavation, or sheet pile driving.

1.02 QUALITY ASSURANCE

A. Qualifications:
   1. Professional Engineer:
      a. Retain the services of a professional engineer licensed and registered in the State of New York and experienced in providing engineering services of the kind indicated.
      b. Responsibilities include, but are not necessarily limited to, performing structural surveys, and preparing and certifying structural survey reports.

1.03 SUBMITTALS

A. Informational Submittals:
   1. Qualifications Statements: Submit name, address of firm, and qualifications of professional engineer.
   2. Notification of Intended Survey Start: Submit in accordance with Part 3.01.A of this Section.
   3. Survey Reports: Submit in accordance with Article 1.04 of this Section.

1.04 SURVEY REPORTS

A. Prepare separate reports for each property and survey. In each report, document the results of the survey and the conditions of visible surface structures located at the property. Include field notes, measurements, and photographs taken during the survey. Number each photograph and label with description and orientation.

B. Submit reports within 14 days after each survey. Reports must be certified by the professional engineer.

1.05 SCHEDULING AND SEQUENCING

A. Pre-Construction Surveys: Perform pre-construction structural surveys before initiating NAPL barrier wall installation or sediment dredging activities. Do not conduct potential deflection or vibration causing construction operations until the pre-construction reports for each of the identified structures are reviewed by the Owner and Engineer.

B. Post-Construction Surveys: Perform post-construction structural surveys after completion of NAPL barrier wall installation and all removal and backfilling operations and before Substantial Completion.

PART 2 – PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 PREPARATION

A. Notification: Notify Owner and Engineer in writing not less than 14 days before performing each survey. Do not enter properties without permission of property owners.

3.02 STRUCTURAL SURVEYS

A. The professional engineer shall review any available drawings to gain understanding of the structure framework and support system.

B. Perform structural surveys to assess and document the pre-construction and post-construction structural and cosmetic conditions of visible surface structures located at each property. Surveys must be performed by the Contractor's professional engineer. The Engineer will accompany Contractor's professional engineer for each survey.

C. For each survey, take comprehensive notes, measurements, and photographs of each structure and of potential areas of damage or deterioration including, but not limited to, the following:
   1. Photographic documentation should provide an overview of the entire structure or property, in addition to close-up pictures to record problematic areas (e.g. cracks, corrosion, etc.). Label each photograph with a picture number, description, and orientation.
   2. Prepare a figure documenting the location of each photograph using the label assigned under Part 3.02 C.1 above.
   3. Notes and measure potential items of concern, including, but not limited to, the following:
      a. Cracks.
      b. Cracking associated with transitions in geometry. Note changes in plan or section dimensions and any settlement or shrinkage cracking.
      c. Foundation settlement.
      d. Bearing seats of beam/column connections. Carefully examine for potential separation, spalling, and cracking that may be associated with thermodynamic changes or joint rotation.
      e. Bolts and connections.
      f. Areas of corrosion in structural members associated with cracking.
   4. Take pre- and post-construction photographs from the same locations to document potential changes in structural conditions.

5. Work will not start, and final payment will not be issued until the pre- and post-construction reports, respectively, are reviewed and accepted by the Owner and Engineer.

D. Prepare separate survey report for each property in accordance with Article 1.04 of this Section.

END OF SECTION

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SECTION 02 51 00

DECONTAMINATION

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
   1. Decontaminating all vessels, vehicles, equipment, and personnel that contact excavated or impacted materials at the Site.
   2. Constructing and maintaining decontamination areas.
   3. Furnishing all materials, equipment, and labor necessary to construct and maintain decontamination areas and decontaminate vehicles, equipment, and personnel.

B. Related Sections:
   1. 01 35 29 – Contractor's Health and Safety Plan
   2. 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal

1.02 APPLICABLE CODES, STANDARDS, AND SPECIFICATIONS

A. Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities (October 1985), as prepared by the National Institute of Occupational Safety and Health (NIOSH), Occupational Safety and Health Administration (OSHA), United States Coast Guard (USCG), and United States Environmental Protection Agency (USEPA).

1.03 SUBMITTALS

A. Safety Data Sheets (SDS) for all cleaning/decontamination solutions in the Contractor's Health and Safety Plan (HASP). SDS forms must be provided for review by the Owner and the Engineer prior to being brought on site.

PART 2– PRODUCTS (NOT USED)

PART 3 – EXECUTION

3.01 GENERAL REQUIREMENTS

A. Construct impermeable equipment decontamination area(s) within or adjacent to the Project Work Limits. Visually inspect and decontaminate vehicles and equipment that contact excavated or impacted materials (to the satisfaction of the Owner, Engineer, and/or NYSDEC) within the equipment decontamination area prior to handling backfill material or leaving the site. Any visible soils or other debris must be promptly removed and disposed of in accordance with Section 35 20 23 – Mechanical Dredging, Backfill, and Material Handling and Disposal.

B. Limit contact between the vehicle/vessel/equipment, personnel performing the decontamination activities, and any decontamination liquids that may accumulate in the decontamination area. Personnel engaged in decontamination activities must use personal protective equipment, including disposable clothing, as required by the Contractor's HASP.

C. Collect wash water, solids, and other materials generated during decontamination activities and handle/manage the material in accordance with Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal and the Contractor's approved Waste Management Plan (WMP).

3.02 DECONTAMINATION PROCEDURES

A. Prior to handling clean material or demobilization, decontaminate equipment that has handled impacted materials to remove visual impacts to the satisfaction of the Owner. Conduct equipment decontamination within a properly constructed decontamination area or such that removal of all materials and rinsing of equipment occurs over a barge laden with impacted material prior to transport.

B. Prior to handling clean backfill material, raise the environmental bucket used for material handling over a material transport barge containing impacted material and rinse to remove the presence of visible soils and debris.

C. When unloading at the processing facility leave approximately 6 inches of material in the bottom of each barge to indicate that the barge should be reused to transport additional impacted material.

D. When a barge will no longer be used to transport impacted material, the processing facility shall empty the barge of impacted materials and decontaminate the barge before it leaves the facility.

END OF SECTION

SECTION 31 00 00

EARTHWORK

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
   1. This technical specification includes Contractor requirements for conducting the following
      a. Aggregates for Earthwork
         1) Providing all labor, materials, equipment, and services required to provide and place fill materials as shown and specified.
         2) Off-site fill materials consist of:
            a) Riprap
            b) Hydraulic Control Trench Backfill and NAPL Control Trench Backfill
            c) River Backfill
            d) Sand Backfill/Organoclay
            e) Vegetated Topsoil
      b. Geotechnical Instrumentation and Monitoring
         1) Furnishing and installing geotechnical instrumentation in accordance with this Section and as shown on the Drawings, including:
            a) Vibration monitoring.
            b) Optical survey monitoring of MTA railroad and steel foot bridge.
         2) Conducting all activities on the project in such a manner that damage is prevented to adjacent pipes, structures, property and Work, and such that the ground vibrations and ground/structure displacements are consistently maintained below the maximum levels specified in this Section.
         3) Notifying the Engineer prior to conducting any vibration producing activity and conducting appropriate monitoring at nearby structures in accordance with the plan prepared by the Contractor's independent specialist and approved by the Engineer.
         4) Providing and installing optical survey monitoring points in or on the ground and/or on existing structures and utilities and railroads and setting up engineering seismographs adjacent to or on structures.
         5) Protecting existing or installed vibration monitoring equipment, benchmarks, optical survey monitoring points and other monitoring equipment.
         6) Protecting/monitoring existing installed construction; existing utilities, including, but not limited to, the steel footbridge and the Metro North Railroad as shown on the Design Drawings.
         7) Initiating and performing vibration monitoring just prior to and continuously during all excavation and demolition activities at the Site. Performing optical survey monitoring daily during excavation and backfill using optical monitoring points.
         8) Coordinating work with public (New York 811) and private utility companies that have any above-ground, below-ground, or other utility lines within or adjacent to the Site.
         9) Protecting completed removal areas, installing components, and built structures associated with the Design Drawings, such that once installed, operations are conducted in a manner that avoids deteriorating or otherwise damaging these features.

c. Clearing and Grubbing
    1) Providing all labor, materials, equipment, and incidentals required to clear and grub vegetation to facilitate remedial construction.
    2) Loading trees, stumps, brush, roots, shrubs, vegetation, logs, rubbish, and other objectionable material for transportation and offsite disposal in accordance with Section 01 70 00 Execution and Closeout Requirements.
d. Topsoil Placement and Grading
    1) Furnishing topsoil, fertilizer, and seed; preparing the sub-grade and the placing topsoil, fertilizer, and seed on the triangle parcel and other disturbed grass covered areas.
    2) Conducting required maintenance until acceptance.

B. Related Sections:
1. Section 01 50 00 – Temporary Facilities and Controls
2. Section 01 70 00 – Execution and Closeout Requirements
3. Section 02 21 19 – Structural Surveys
4. Section 35 20 23 – Mechanical Dredging, Backfill, and Material Handling and Disposal
5. Section 35 31 16 – NAPL Barrier Wall and Collection System

1.02 REFERENCES

A. Aggregates for Earthwork
1. Standards referenced in this Section are:
    a. ASTM D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft^3 [600 kN-m/m^3]).
    b. ASTM D2974, Standard Test Methods for Moisture, Ash, and Organic Matter of Peat and Other Organic Soils.
    c. ASTM D4318, Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils.
    d. ASTM D4972, Standard Test Methods for pH of Soils.
    e. ASTM D6913, Standard Test Method for Particle-Size Distribution (Gradation) of Soils Using Sieve Analysis.
    f. ASTM D5519-15, Standard Test Method for Particle Size Analysis of Natural and Man-Made Riprap Materials.
    g. ASTM D7928, Standard Test Method for Particle-Size Distributions (gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis.
    h. Nutrient Content in accordance with Agricultural Experiment Station recommendations for New York State (Hesse, P. R., A Textbook of Soil Chemical Analysis, Chemical Publishing Co., New York, NY, 1972).
    i. Total volatile organic compounds (VOCs) in accordance with USEPA SW-846 Method 8260C.
    j. Total semi-volatile organic compounds (SVOCs) in accordance with USEPA SW-846 Method 8270D.
    k. Total polychlorinated biphenyls (PCBs) in accordance with USEPA SW-846 Method 8082.
    l. Pesticides in accordance with USEPA SW-846 Method 8081B.
    m. Herbicides in accordance with USEPA SW-846 Method 8051A.
    n. Target Analyte List (TAL) Metals in accordance with USEPA SW-846 Method 6010C/6020A/7471B.
    o. Total mercury in accordance with USEPA SW-846 Method 7471.
    p. Total Cyanide in accordance with USEPA SW-846 Method 9012B.
    q. pH in accordance with USEPA SW-846 Method 9045C.
    r. Per- and Polyfluoroalkyl Substances (PFAS) in accordance with USEPA Modified Method 537.

2. Regulatory Requirements: Laws and Regulations applying to the Work under this Section include:
    a. NYSDEC, Technical Guidance for Site Investigations and Remediation (DER-10).
    b. NYSDEC, Title 6 of the Official Compilation of Codes, Rules, and Regulations (6 NYCRR) Part 375 (Environmental Remediation Programs).
    c. New York State Department of Transportation (NYSDOT), Standard Specifications.

1.03 QUALITY ASSURANCE

A. Aggregates for Earthwork
    1. Qualifications:
        a. Contractor's Testing Laboratory: Retain the services of an independent testing laboratory to perform quality assurance and field quality control testing required in this Section. Testing laboratory shall comply with ASTM E329, and shall be experienced in the types of testing required.
        b. Off-Site Fill Sources: Source of off-site fill material shall be a NYSDEC-permitted mine, pit, or quarry, and shall be approved by NYSDOT for furnishing aggregates for NYSDOT projects.
    2. Regulatory Requirements:
        a. Comply with applicable provisions and recommendations of the following:
            1) NYSDEC Technical Guidance for Site Investigation and Evaluation (DER-10).
    3. Quality Assurance Testing:
        a. Required Quality Assurance Material Testing by the Contractor's Testing Laboratory:
            1) Gradation in accordance with ASTM D6913 and D5519-15 (as appropriate). Perform one test for each type and source of material. Test one sample per 1,500 cubic yards of imported material. Further sampling may be required by Engineer if concern arises that the characteristics of the materials have changed.
            2) Moisture/density relations in accordance with ASTM D1557. Perform one test for each source and each of the following types of materials incorporated into the Work: Riprap and Hydraulic Control trench backfill. Further sampling may be required by Engineer if concern arises that the characteristics of the materials have changed.
            3) Moisture content of borrow material in accordance with ASTM D2216. Perform one test for each source and each of the following types of material incorporated into the Work: Hydraulic Control Trench backfill, NAPL Control Trench Backfill, River Backfill, and Sand Backfill. Further sampling may be required by Engineer if concern arises that the characteristics of the materials have changed.
            4) Analytical testing of clean fill materials as required in Paragraph 2.01.A of this Section.
    4. Regulatory Requirements: Laws and Regulations applying to the Work under this Section include:
        a. New York State Department of Environmental Conservation (NYSDEC), DER-10 Technical Guidance for Site Investigations and Remediation.
        b. NYSDEC Title 6 of the Official Compilation of Codes, Rules, and Regulations (6 NYCRR) Part 375 (Environmental Remediation Programs).
        c. New York State Department of Transportation (NYSDOT), Standard Specifications Sections 300, 500, 600 and 700.

B. Geotechnical Instrumentation and Monitoring
    1. Qualifications
        a. Personnel installing and monitoring geotechnical instrumentation must have at least 4 years of direct field experience in installation and monitoring of the types of instruments specified herein and interpreting instrumentation data.

b. Retain a Land Surveyor licensed in the State of New York to conduct optical survey monitoring detailed in this section.

2. Job Conditions
   a. Install and monitor optical survey monitoring points on the ground and/or on existing structures and engineering seismographs adjacent to or on adjacent structures, for the purpose of monitoring and ensuring compliance with the vibration and ground and structure deformation limits specified herein.
   b. Conduct and report optical survey readings to a precision of 0.005 feet. Conduct vibration monitoring using personnel experienced in the correct placement and monitoring of engineering seismographs. Engineer seismographs must be capable of recording vibration levels from 0.02 to 10 inches per second, at frequencies from 2 to 200 Hertz.
   c. Initiate vibration monitoring just prior to NAPL Barrier Wall installation (Section 35 31 16 – NAPL Barrier Wall and Collection System) and perform continuously during dredging activities.
   d. Conduct optical survey monitoring:
      1) several times per day when dredging, hydraulic barrier, and NAPL barrier wall construction activities are being conducted within 50 feet of a monitored structure
      2) daily when dredging and NAPL Barrier Wall construction activities are being conducted between 50 and 100 feet of a monitored structure
      3) weekly when these activities are being conducted further than 100 feet from a monitored structure
   e. Provide vibration and optical survey monitoring reports to the Owner and Engineer by the end of the next day after monitoring has been performed
   f. Notify the Owner and Engineer immediately if any vibration or settlement monitor readings exceed the threshold or limiting values specified below in Part 1.03 B.3.
3. Movement and Vibration Limits
   a. Maximum vibrations at the existing MTA railroad must not exceed the following as a result of excavation, dredging, sheet pile driving or other activities of the Contractor.
      1) All above ground structures and utilities on site: Threshold limit, maximum peak particle velocity (PPV) of 1.5 inch per second; limiting value, maximum PPV of 2.0 inch per second.
   b. Maximum vibrations at the existing steel footbridge must not exceed the following as a result of excavation, dredging, sheet pile driving or other activities of the Contractor.
      1) All above ground structures and utilities on site: Threshold limit, maximum peak particle velocity (PPV) of 0.4 inch per second; limiting value, maximum PPV of 0.5 inch per second.
   c. Maximum movements at MTA railroad and steel footbridge must not exceed the following as a result of excavation, sheet pile driving, dredging, or other activities of the Contractor:
      1) Threshold limit, maximum settlement or heave of 0.20 inches; limiting value, maximum settlement or heave of 0.30 inches.
   d. Actions if threshold or limiting values are exceeded:
      1) If threshold limits of vibration or movement are exceeded, the Contractor must notify Engineer immediately and must submit to the Engineer, within 24 hours of the exceedance, a submittal indicating the activity causing the exceedance and the steps the Contractor has taken and will take to prevent further exceedances of the threshold limit.
      2) If limiting values of vibration or movement are exceeded, all work by the Contractor in the vicinity of the exceedance must stop until a meeting takes place between the Contractor, Owner and Engineer to assess the causes of the exceedance. The Contractor must prepare and submit to the Engineer a submittal indicating what activity caused the exceedance and what steps the Contractor will take to prevent further exceedances of the limits. No work in the

vicinity of the exceedance will be restarted until the submittal is reviewed and approved by the Engineer.

4. Movement Monitoring of Structures
   a. Establish a benchmark for settlement readings of the structures on a stable feature beyond the zone of influence of the construction.
   b. Monitor vertical movements of the MTA railroad and steel footbridge located within 50 feet of all excavations by elevation survey of the structures.
   c. Conduct daily elevation surveys of the structures during excavation, dredging, and sheet pile driving. Maintain monitoring points until all site work for the project is complete.
5. Record Keeping
   a. Record the following information relating to the optical survey monitoring:
      1) Location/designation.
      2) Amount of settling or lateral movement.
      3) Date and time.
      4) Current work activities.
      5) Ambient temperature during each recording.
   b. Submit a record of each vibration operation no later than the beginning of the subsequent workday during vibration-causing construction activities. The record will include the following information:
      1) Peak hourly readings during vibration activities.
      2) Weather conditions.
      3) Name of the responsible person in charge.
      4) Signature and title of person making record entries.
   c. Provide copies of these records to the Engineer daily.
   d. Submit a final report documenting all monitoring activities within 20 days of completion of the excavation, dredging, demolition, backfilling, or sheetpile installation. This report must consist of the following:
      1) As-constructed drawings showing each monitored location point.
      2) Results of optical survey monitoring.
      3) Maximum Peak Particle Velocities at each vibration monitoring location.
6. Instrumentation
   a. Install all instruments in the presence of the Engineer. Maintain access to the work area for the purpose of observing instrumentation and obtaining data. Determine the elevation and location of all instrumentation a minimum of one week prior to excavation, demolition, or shoring installation.
   b. The Contractor will be responsible for all damage incurred to utilities and structures during geotechnical instrumentation installation.
   c. Protect and maintain instrumentation until the end of the Project. Any instrumentation damaged or otherwise rendered non-functional must be repaired or replaced with a new installation within five working days at no additional cost to the Owner. Repair or replacement work must conform to the requirements specified herein for the respective type of geotechnical instrumentation.
   d. Provide and maintain well-delineated protection devices at the surface of all instrumentation.
   e. Provide installation plans for monitoring devices.
7. Delivery/Storage/Handling
   a. Calibrate and ensure that all instruments are in working order at the time of installation. The Engineer will verify the operation of the instrumentation on site, immediately prior to installation.
   b. All appropriate precautions for working with electricity, as indicated in the Contractor's Health and Safety Plan, will be followed at time of installation.

C. Clearing and Grubbing
   1. Warranty
      a. Warrant that Work performed under this Section will not permanently damage trees, shrubs, turf, and plants designated to remain, or other adjacent work, facilities, or property. If damage resulting from Contractor's operations becomes evident during the correction period, replace damaged items and property at no additional cost to Owner.

1.04 SUBMITTALS

A. Aggregates for Earthwork
   1. Action Submittals:
      a. Qualifications Statements:
         1) Quality Assurance Testing Laboratory. Submit name and qualifications of testing laboratory to be employed, and qualifications of testing laboratory's personnel that will perform quality assurance testing required in this Section. Owner and Engineer must approve testing laboratory prior to submitting samples for analysis.
      b. Borrow Source Characterization Report: At least four weeks prior to import of materials to project site, submit a Borrow Source Characterization Reports for each source and each material type specified in Part 2. The Borrow Source Characterization Reports shall include, at a minimum following:
         1) The material source, including name, address, and contact information.
         2) A certification letter from the borrow source owner or operator certifying that the source is not from an industrial site or suspected to have been modified by the addition of manufactured chemicals and that the material does not contain oil or hazardous material as supported by test data to be provided with certification letter and a copy of applicable current permits (e.g., NYSDEC mining permit) and approvals (e.g., NYSDOT quarry certification).
      c. Material Testing Results:
         1) Submit to the Remediation Engineer, as necessary, analytical testing results for each material tested as specified in Part 2.02 A. 5.
         2) Submit to the Remediation Engineer a completed NYSDEC Request to Import/Reuse Fill or Soil form for each imported and reuse fill material proposed for site use. The Remediation Engineer will forward
   2. Informational Submittals: Submit the following:
      a. Delivery Tickets:
         1) Delivery Tickets. Submit copy of delivery ticket for each load of off-site material delivered to the Site. Each delivery ticket shall indicate Supplier name and source address, project name, contract number, date, material type, NYSDOT item number when applicable, and weight delivered as measured on certified scales at the source location.
      b. Quality Assurance Test Results Submittals:
         1) Submit results of quality assurance testing performed in accordance with Paragraph 1.03. A. 3. of this Section at least 2 weeks prior to bringing material onsite.

B. Geotechnical Instrumentation and Monitoring
   1. Action Submittals: Prior to the start of work, submit the following to the Engineer for approval:
      a. Prepare and submit a Monitoring Plan and Installation Plan at least ten (10) days prior to mobilization of monitoring equipment for Engineer's approval. Monitoring plan shall be prepared by the independent specialist and include the following:

1) Estimates of vibration when excavation/dredging, sheet pile driving or demolition activities are taking place at the closest point to adjacent structures.
2) Submit qualifications for the independent specialist whose services have been selected by the Contractor for performing the vibration and deflection monitoring work demonstrating at least 5 similar assignments completed successfully during the last 5 years.
3) Shop drawings and manufacturer's data for the following:
    a) Engineering seismographs
    b) Optical survey prisms
4) Detailed descriptions of the proposed installation and maintenance procedures for the geotechnical instrumentation (i.e., engineering seismographs and optical survey points)
    a) Manufacturer's installation recommendations and requirements.
    b) Proposed methods for reinstalling the instruments if they are damaged, fail to operate properly, or otherwise require temporary removal and reinstallation.
5) Methods for demarcating the location of geotechnical instruments.

2. Vibration and optical survey monitoring reports in accordance with Part 1.03 B. 5. above.

C. Clearing and Grubbing
1. Action Submittals: Submit the following
    a. Shop Drawings:
        1) Plan for removing trees and other large vegetation not explicitly shown or indicated for removal in the Contract Documents.
        2) Plan showing proposed limits of clearing and grubbing, if different from clearing and grubbing limits shown or indicated in the Contract Documents.

D. Topsoil Placement and Grading
1. Submit the source location and associated data (including pH, gradation) for topsoil.
2. Refer to Part 2.02 A for laboratory and analytical testing requirements.
3. Seed Certificates: At least 14 days prior to seeding, submit certificates from seed vendors for each seed mixture required, stating botanical and common name, percentage by weight and percentages of purity, germination, and weed seed for each species.
4. Fertilizer Information: At least 14 days prior to fertilizing, submit a description of the fertilizer material (including the chemical make-up), the proposed fertilizing methods, and application rates.
5. Seeding Plan: provide suitable means to effectively seed restoration areas.

PART 2 – PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Aggregates for Earthwork
1. General Requirements:
    a. Use of dredge-derived fill is strictly prohibited.
2. Riprap
    a. Rip rap shall consist of hard, durable, angular or subangular rock and shall be composed of a well graded mixture of rock size.
    b. Material gradation shall be as specified in Table 31 00 00-A.

TABLE 31 00 00-A
GRADATION REQUIREMENTS FOR RIP RAP

U.S. Sieve Size	Percentage by Weight Passing Sieve
20 inches	100
14 inches	0-10

c. One dimension of each of the stones furnished must be at least equal to the thickness of the riprap shown in the contract documents.
d. Durability: the soundness of all material used for riprap will be approved on the basis of a geologic evaluation in accordance with the geotechnical control procedure "Procedure for the Control of Stone Filling and Rip-Rap Items" by NYSDOT.

3. Hydraulic Control Trench Backfill and NAPL Control Trench Backfill
   a. Material must consist of crushed stone or gravel, free of soft, non-durable particles, organic material, and thin or elongated particles
   b. Material gradation shall be as specified in Table 31 00 00-B.

TABLE 31 00 00-B
GRADATION REQUIREMENTS FOR
HYDRAULIC CONTROL TRENCH BACKFILL AND NAPL CONTROL TRENCH BACKFILL

U.S. Sieve Size	Percentage by Weight Passing Sieve
4-inch (100 mm)	100
1-inch (25 mm)	15-60
¼ -inch (6.4 mm)	0-25
No. 40	0-10

4. River Backfill
   a. Material must consist of naturally occurring soil free from refuse, sod clumps, seeds or other variable propagules of invasive plants, woody vegetation stones, clay clumps, or similar objects.
   b. Material gradation shall be as specified in Table 31 00 00-C.

TABLE 31 00 00-C
GRADATION REQUIREMENTS FOR RIVER BACKFILL

U.S. Sieve Size	Percentage by Weight Passing Sieve
No. 4	100
No. 40	75-100
No. 100	35-85
No. 200	0-40

5. Sand Backfill/Organoclay
   a. Sand Backfill Material must consist of naturally occurring soil free from refuse, sod clumps, seeds or other viable propagules of invasive plants, woody vegetation stones, clay clumps, or similar objects.
   b. Organoclay material must meet the technical requirements of Cetco® Organoclay® PM-200 organic adsorption media or equivalent.
   c. Sand Backfill and Cetco® Organoclay® PM-200 must be uniformly blended at a ratio of 10:1 (Sand Backfill:Organclay) by weight prior to placement.
   d. Sand Backfill material must meet the NYSDOT Standard Specification Section 703-07 or similar.
   e. Material gradation shall be as specified in Table 31 00 00-D.

TABLE 31 00 00-D
GRADATION REQUIREMENTS FOR SAND BACKFILL/ORGANOCLAY

U.S. Sieve Size	Percentage by Weight Passing Sieve
3/8 – inch (9.5 mm)	100
No. 4	90 - 100
No. 8	75 - 100
No. 16	50 - 85
No. 30	25 - 60
No. 50	10 - 30
No. 100	1 - 10
No. 200 (wet)	0 - 3

6. Vegetated Topsoil
   a. Topsoil composition is presented in Part 2.01 C of this Section.

B. Geotechnical Instrumentation and Monitoring
   1. Engineering Seismograph
      a. Instantel Micromate Pro6 seismograph, or engineer approved equal, capable of reading and recording vibrations to the accuracy stated in this section.
   2. Optical Survey Points
      a. Optical survey equipment shall meet a 0.05-inch tolerance in order to know that any variances in movements are not due to the equipment tolerance, but rather they are due to actual movements due to excavation and backfilling activities.
      b. Optical Survey Points shall be fixed prisms or an approved equivalent that will allow the points to be optically surveyed.

C. Topsoil Placement and Grading
   1. Topsoil
      a. Topsoil shall be a locally available, fertile, friable soil of loamy character, obtained from well-drained arable land and reasonably free from subsoil, refuse, roots, heavy or stiff clay, large stones, coarse sand, sticks, brush, litter, and other deleterious substances. Vegetative matter other than brush or trees may be incorporated into topsoil.
      b. Material gradation shall be as specified in Table 31 00 00-E.

TABLE 31 00 00-E
GRADATION REQUIREMENTS FOR TOPSOIL

U.S. Sieve Size	Percentage by Weight Passing Sieve
¾ - inch (19 mm)	100
¼ - inch (6.4 mm)	97-100

      c. Other components shall conform to the following limits:

TABLE 31 00 00-F
TOPSOIL COMPOSITION

Component	Criteria
Silt	10 to 30%
Clay	0 to 10%
Sand	70 to 90%
pH	5 to 7
Organic Content[1]	5% minimum

1 - Percent organic matter will be determined using the topsoil composition tests of the Organic Carbon, 6A, Chemical Analysis Method described in DOA SSIR 42

d. Collect and send at least two representative topsoil samples to an approved laboratory for physical, analytical, and soil fertility testing. The results of the soil fertility testing shall provide recommendations for lime and fertilizer application rates. The results for the texture and grain size should facilitate further refinements to the structural limits listed above.

2. Seed
   a. Provide seed of the latest season's crop delivered in original sealed packages, bearing producer's guaranteed analysis for percentages of mixtures, purity, germination, weedseed content, and inert material. Label in conformance with Federal Seed Act and applicable state seed laws. Wet, moldy, or otherwise damaged seed will be rejected.
   b. If necessary, a temporary, sterile cover crop can be applied and should be submitted for approval 15 days prior to seeding.
   c. Seed mixture by weight for the specified seed mixes are included in Table 31 00 00-G, and shall be seeded at a minimum rate of 50 lbs per acre:

TABLE 31 00 00-G
SEED MIX

Percent By Weight	Scientific Name	Common Name
25.0%	*Agrostis stolonifera*	Creeping Bentgrass
25.0%	*Agrostis tenuis*	Colonial Bentgrass
20.0%	*Panicum virgatum*	Switch grass
10.0%	*Carex comosa*	Cosmos (Bristly) Sedge
10.0%	*Lolium Multiflorum*	Annual Ryegrass
10.0%	*Sorghastrum nutans*	Indiangrass

   d. Fertilizer shall be a standard-quality, commercial carrier of available plant food elements (a complete, prepared, and packaged material containing an appropriate ratio of nitrogen, phosphoric acid, and soluble potash, as recommended by the soil fertility tests). Fertilizer composition will be determined based upon soil fertility testing.
   e. Each bag of fertilizer shall bear the manufacturer's guaranteed statement of analysis.

2.02 SOURCE QUALITY CONTROL

A. Aggregates for Earthwork
   1. Test and retest specified aggregates, as directed by Owner, during the Project. Always allow free access to material stockpiles and facilities. Perform sampling in the presence of the Engineer. Tests not specifically indicated to be performed at Owner's expense, including retesting of rejected materials and installed Work, will be performed at the Contractor’s expense.
   2. Collect samples and perform testing of proposed fill materials in the laboratory and in the field to demonstrate compliance of the Work with the Contract Documents.
   3. Submit to Engineer and Contractor written geotechnical testing and/or analytical laboratory report.
   4. Geotechnical Testing:
      a. Collect one representative sample of each material for the following testing:
         1) Gradation in accordance with ASTM D6913 and D5519-15 (as appropriate)
   5. Chemical Testing:
      a. Conduct chemical testing on each proposed off-site fill material with greater than 10 percent by weight passing the No. 80 sieve, as determined by gradation testing performed in accordance with Paragraph 2.02. A. 4. a. of this Section.
         1) Collect a combination of discrete and composite samples of each off-site fill material in accordance with Subdivision 5.4(e) and Table 5.4(e)10 of DER-10.

2) Submit each discrete sample for:
   a) VOCs in accordance with USEPA SW-846 Method 8260.
3) Submit each composite sample for the following analyses:
   a) SVOCs in accordance with USEPA SW-846 method 8270.
   b) 1,4-dioxane using USEPA Method 8270 with Selected Ion Monitoring mode
   c) PFAS compounds (currently 21) using USEPA Method 537.1(modified)
   d) PCBs in accordance with USEPA SW-846 Method 8082.
   e) Pesticides in accordance with USEPA W-846 Method 8081.
   f) Herbicides in accordance with USEPA SW-846 Method 8151.
   g) Total metals in accordance with USEPA SE 946 Method 6010.
   h) Total mercury in accordance with USEPA SW-846 Method 7471.
   i) Total cyanide in accordance with USEPA SW-846 Method 9012.
   j) Total Organic Content with AASHTO T 267-86.
   k) pH
4) Also submit topsoil for percent organic matter testing using the topsoil composition tests of the Organic Carbon, 6A, Chemical Analysis Method described in DOA SSIR 42.

b. If testing results indicate that a proposed off-site fill material does not comply with the Contract Documents, Contractor shall identify and propose a new off-site source of the specified material.
   1) Submit required information for proposed imported fill source and Supplier in accordance with Article 1.04 of this Section.

6. Do not ship off-site fill materials to the Site until proposed materials, sources, and Suppliers are accepted by Engineer.

PART 3– EXECUTION

3.01 AGGREGATES FOR EARTHWORK

A. Placement:
   1. Place and compact fill materials in accordance with the Drawings and Specification Article 3.04 of this Section and Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal.

3.02 GEOTECHNICAL INSTRUMENTATION AND MONITORING

A. Pre- and Post-Construction Structural Surveys
   1. Conduct pre- and post-construction structural surveys in accordance with Section 02 21 19 – Structural Surveys.

B. Installation
   1. Engineering Seismograph:
      a. Supply and install electronic engineering seismograph, as per the manufacturer's recommendations and, in accordance with the Contractor's *Monitoring Plan and Installation Plan* or as directed by the Engineer or Owner. Vibration monitoring locations are shown on the Design Drawings.
      b. Notify the Engineer at least 24 hours prior to installing each instrument.
      c. Firmly mount engineering seismographs in specified locations using methods consistent with the manufacturer's recommendations with consideration of the specific substrate of this site.
      d. Install engineering seismographs and establish baseline vibration monitoring before any construction activity that could cause vibration will be allowed to commence.

2. Optical Survey Points:
    a. Contractor shall have a qualified surveyor establish a benchmark and optical survey points, at locations specified by the Engineer.
    b. Notify the Engineer and Owner at least 24 hours prior to installing each fixed prism or approved equivalent.
    c. Install optical survey points in approved locations (horizontal and vertical) and in accordance with manufacturer's specifications.
    d. Install optical survey points and establish baseline deflection monitoring prior to any excavation, demolition, sheet pile driving, or dredging.

C. Instrumentation
1. Protect and maintain instrumentation until the end of Work. Any instrumentation damaged or otherwise rendered non-functional shall be repaired or replaced with a new installation within five working days at no additional cost to the Owner. Conform repair or replacement work to the requirements specified herein for the respective type of geotechnical instrumentation.
2. Provide and maintain well-delineated protection devices at the surface for all instrumentation.

D. Damage to Instrumentation
1. Protect all instruments and appurtenant fixtures, leads, connections, and other components of instrumentation from damage due to construction operations, weather, and vandalism.
2. If an instrument is damaged or inoperative, the Contractor must repair or replace the damaged or inoperative instrument within 48 hours with no additional cost to the Owner. The Owner or Engineer will be the judge of whether repair or replacement is required.

E. Removal
1. Remove instrumentation only when directed by the Owner.
2. Repair any damaged or disturbed surfaces to original condition.
3. All instrumentation will become the property of the Contractor.

3.03 CLEARING AND GRUBBING

A. Preparation
1. Protection:
    a. Throughout the Project, protect existing site improvements, including streets, drives, and Underground Facilities to remain (if any), and adjacent property and structures. Repair damage caused by Contractor to original condition or replace in kind, to satisfaction of Engineer, at no additional cost to Owner.
    b. Protect trees, shrubs, vegetation, and grassed areas to remain by providing temporary fencing, barricades, wrapping, or other methods shown, specified, or accepted by Engineer. Correct at Contractor's expense damage caused by Contractor outside the limits of clearing Work.
    c. Only remove trees as necessary to complete work, whether or not indicated for removal in the Contract Documents. Do not remove trees without approval of Engineer, unless shown or indicated for removal.
    d. Do not locate construction equipment, stored materials, or stockpiles within drip line of trees and vegetation to remain.
2. Site Preparation
    a. Obtain, pay costs associated with, and comply with applicable permits required for clearing and grubbing Work.
    b. Clearing and Grubbing Limits Delineation:

1) Provide flagging to delineate limits of areas to be cleared or grubbed. Review at Site with Engineer before commencing removal of trees, vegetation, and other materials to be removed.
2) Replace flagging that is lost, removed, or destroyed, until clearing and grubbing Work is complete, and Engineer allows removal of flagging.

c. Erosion and Sediment Controls:
1) Provide applicable erosion and sediment controls before commencing clearing and grubbing Work.
2) Comply with erosion and sediment control requirements of Section 01 50 00 Temporary Facilities and Controls.
3) Continue providing erosion and sediment controls as clearing and grubbing Work progresses to previously uncleared, ungrubbed areas of the Site.

B. Clearing and Grubbing
1. Remove and dispose of all trees, shrubs, stumps, roots, brush, logs, rubbish, and debris within limits of clearing and grubbing shown or indicated in the Contract Documents, unless otherwise shown or indicated.
2. Disposal of Cleared and Grubbed Materials:
a. Manage trees, stumps, rubbish, debris, and other cleared and grubbed material with other materials for offsite disposal (e.g., excavated materials). Cleared or grubbed materials may remain at the Site only when allowed in the Contract Documents. Do not use cleared or grubbed material as fill, backfill, or in embankments.
b. Do not burn clearing debris at the Site, unless approved by Owner and authorities having jurisdiction.

3.04 TOPSOIL PLACEMENT AND GRADING

A. Installation
1. Grade the area to receive topsoil such that the final top soiled surface matches the final grades shown on the Contract Drawings, or as otherwise directed by the Engineer (i.e., rough-graded surface prior to topsoil application should be lower than final design grade by an amount equal to the final thickness of topsoil to be placed).
2. Grade disturbed areas to receive topsoil to a depth of not less than six inches below the proposed finished grades shown on the Contract Drawings or as directed by the Engineer.
a. Remove all debris and inorganic material and loosen the surface for a depth of two inches prior to the placing of the topsoil.
b. Do not place the topsoil until the sub-grade is in suitable condition and free of excessive moisture and frost.
3. Prior to seed application, till the topsoil surface to a depth of at least 2 inches by disking, harrowing, or other acceptable means if surface is uneven, glazed, or crusted. No seeding shall be done during windy weather. Seeding shall be done in two directions at right angles to each other. Sow seed evenly by hand or with an approved mechanical seeding device in the proportions and at the rate per unit area specified. The sown seed shall be covered with a straw mulch, if recommended, as specified herein.
4. Complete seed between April 15th and June 15th or between September 30th and November 15th. If construction timing does not allow, Contractor will submit a plan for a temporary cover crop until which time it is suitable to apply seed.
5. Apply lime and fertilizer as recommended by the soil fertility test results and work as deeply as possible into soil.
6. After the topsoil surface has been prepared, uniformly apply the seed mixture to the prepared surface by appropriate means at the rate specified in this specification, or as otherwise recommended by the seed supplier for the seed mix being used.

a. Do not seed and mulch during windy weather (i.e., wind speeds that prevent uniform application of seed and mulch).
b. Incorporate the seed into the uppermost ½-inch of soil by appropriate means

7. Spread straw mulch, if used, to form a continuous blanket over the seed bed at an application rate of approximately 2 tons/acre. Excessive amounts or bunching of mulch will not be permitted.
   a. Anchor mulch by an acceptable method (e.g., pinning, crimping, tackifier).
   b. Unless otherwise specified, leave mulch in place and allow to disintegrate.
8. If hydroseeding is the selected method of planting, the following shall also apply:
   a. Seed and mulch in a one-step process in which seed, fertilizer, hydraulic mulch, and mulch adhesive (tackifier) are applied simultaneously in a homogeneous water slurry via hydraulic seeder/mulcher.
   b. Hydraulic Seeder/Mulcher: Apply seed, fertilizer, hydraulic mulch, and temporary cover adhesive using an acceptable hydraulic seeder/mulcher. The hydraulic seeder/mulcher shall be equipped with mechanical agitation equipment capable of mixing the materials into a homogeneous water slurry and maintaining the slurry in a homogeneous state while it is being applied. The discharge pumps and gun nozzles shall be capable of applying the materials uniformly in a spray pattern that neither concentrates the slurry nor erodes the soil.
   c. Volume Certification: Hydraulic seeding/mulching equipment shall have the tank volume certified by a plate affixed by the manufacturer and confirmed by the Engineer's on-site representative by means of measurements or tests prior to the commencement of work. This plate shall be affixed in plain view on the hydraulic seeder/mulcher and shall not be removed or altered. The plate shall certify tank volume only and shall not imply equipment conformance to other requirements of this Section.
   d. Application of Materials: Measure the quantity of each material to be charged into the hydraulic seeder/mulcher tank either by mass or by a system of mass-calibrated volume measurements acceptable to the Engineer. Add the materials to the tank while it is being loaded with water. Thoroughly mix the materials into a homogeneous slurry and distribute uniformly over the designated surface area via the hydraulic seeder/mulcher. Apply seed, fertilizer, and where applicable, hydraulic mulch adhesive within 90 minutes of being charged into the hydraulic seeder/mulcher tank. During loading of the hydraulic seeder/mulcher tank, add materials in the following sequence: seed, then fertilizer, then, where applicable, hydraulic mulch and adhesive.
   e. Hydroseeding should be performed in two directions to avoid shadowing and in such a manner that produces 100 percent ground coverage.
   f. Blend into existing adjacent grass areas to bond new growth to existing adjacent areas or to previous applications to form uniform surfaces.
9. Water seeded areas as often as required to obtain germination and to obtain and maintain a satisfactory sod growth. Conduct watering in such a manner as to prevent washing out of seed.

B. Maintenance
   1. Contractor is responsible for all necessary watering throughout the first year after planting.
   2. Contractor is responsible for achieving a minimum of 70 percent vegetative herbaceous cover within first year after planting.
   3. Contractor shall repair any areas of erosion and reseed (and re-fertilize, if necessary) any dead or dying areas of vegetation, as necessary, until complete coverage and satisfactory sod growth is achieved.

END OF SECTION

SECTION 35 20 23

MECHANICAL DREDGING, BACKFILL AND MATERIAL HANDLING AND DISPOSAL

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:
   1. Providing all labor, materials, equipment, tools, and services as shown, specified, and required to complete the OU-2 sediment dredging, and backfilling activities.
   2. Providing all labor, materials, equipment, and services required to transport materials via barge to the processing and disposal facility.
   3. Removing/handling debris including sunken barges, wooden piles, concrete, general debris within the area to be dredged to facilitate access to the dredge area and completing dredging and backfilling activities.
   4. Conducting any necessary in-river material transfer operations from small barges/scows or partially loaded barges to optimize the sediment volume in barges transported to the processing, treatment and disposal facility.
   5. Transporting dredged materials via barge to the processing and disposal facility.
   6. Purchasing and transporting clean imported fill materials to the dredged areas.
   7. Obtaining the appropriate permits and equipment necessary to transport such materials.

B. Related Sections:
   1. Section 01 11 00 – Summary of Work
   2. Section 01 50 00 – Temporary Facilities and Controls
   3. Section 01 70 00 – Execution and Closeout Requirements
   4. Section 02 21 19 – Structural Surveys
   5. Section 02 51 00 – Decontamination
   6. Section 31 00 00 – Earthwork

1.02 REGULATORY REQUIREMENTS

A. Laws and regulations applying to the Work under this Section include, but are not limited to:
   1. 29 CFR 1910, Occupational Safety and Health Standards.
   2. 29 CFR 1926, Safety and Health Regulations for Construction.
   3. 40 CFR 261.3, 264, and 265, RCRA.
   4. 49 CFR 171.8, Transportation, Definitions and Abbreviations.
   5. 6 NYCRR 364, Waste Transporter Permits.
   6. 6 NYCRR 370, Hazardous Waste Management System – General.
   7. 6 NYCRR 371, Identification and Listing of Hazardous Wastes.
   8. 6 NYCRR 372, Hazardous Waste Manifest System and Related Standards for Generators, Transporters, and Facilities.
   9. 6 NYCRR 375, Environmental Remediation Programs.
   10. 16 NYCRR 753, Protection of Underground Utilities.
   11. NYSDEC Technical Guidance for Site Investigation and Evaluation (DER-10).
   12. United States Coast Guard (USCG) Regulations.
   13. United States Department of Transportation (USDOT) Regulations.
   14. New York State Department of Transportation (NYSDOT) Regulations.

1.03 SUBMITTALS

A. Action Submittals: Submit the following as part of the Contractor's Project Operations Plan (see Section 01 11 00 Summary of Work):
   1. Access and Site Preparation Plan: Prepare plan describing means and methods for accessing the Work Area and supporting the Work. At a minimum, the Access and Site Preparation Plan will include the following:
      a. Proposed access strategy, including daily launch and mooring locations.
      b. Proposed support area strategy, including office and sanitary facilities.
   2. Debris Removal and Management Plan: At least 30 days prior to starting debris removal, submit written plan for debris removal and management. At a minimum, plan will include:
      a. Method(s), equipment, and construction sequencing for removing and managing each type of debris anticipated within the dredge area. Anticipated debris includes, but is not limited to:
         1) Wooden piles
         2) Concrete foundations
         3) Sunken barges
         4) General debris including tires, wood, steel, plastic, etc.
      b. Procedures and equipment for debris removal prior to and during dredging, including segregation from sediment. Where different procedures or equipment will be used for removing different types of material or at different locations at the Site, indicate where each procedure and equipment item will be used. This will include:
         1) Proposed use of scuba divers to assist in wooden pile removal
         2) Proposed equipment and methods to remove wooden piles to design elevations to facilitate placement of fill and engineered cap materials
         3) Proposed equipment and methods for removing and handling sunken barges as shown on design drawings.
      c. Certification and training certificates for scuba divers, if utilized to assist in wooden pile removal activities.
   3. Sediment Dredging and Backfill Plan: At least 30 days prior to dredging, submit written Sediment Dredging and Backfill Plan. At a minimum, plan will include:
      a. Sediment removal method(s), equipment, and sequencing. Description of the dredging and backfilling equipment to be utilized, including amount, type, and capabilities of the equipment.
      b. Qualifications of dredge operator(s) to be employed for the Work, including:
         1) Years of experience in both general and environmental dredging.
         2) Safety record working on both general and environmental dredging projects
         3) Names and years of experience conducting environmental dredging projects along with detailed project experience for those projects, such as location, size, required dredge accuracy, methods of verification, and references.
         4) Qualifications and experience of positioning equipment technical support personnel to be used for positioning equipment whenever dredging and backfilling activities take place.
      c. All dredge operators must be approved by the Engineer prior to the start of Work. The Engineer reserves the right to revoke approval of a previously approved dredge operator at any point during the Work based on the dredger's ability to meet the requirements of the Specifications or Design Drawings, or for operational health and safety concerns.

d. Description of the Contractor's means and methods for completing the dredging and backfill Work, including details regarding the types, sizes, and manufacturer specifications of the dredge, dredge buckets, debris removal equipment, tugboats, barges, and other support vessels. The Sediment Dredging and Backfill Plan must include details demonstrating that the Contractor's approach has been developed to remove debris to the extent necessary and achieve the required final dredge elevations specified on the Design Drawings. Provide details such as schedule and sequence within the dredge areas.
e. Details regarding the dredging and backfilling operations schedule and sequence. Describe the proposed debris removal, dredging and backfilling logistics, as applicable to In-Water Work. Logistics will include a schedule illustrating down-time assumptions, sequence of the Work, coordination with backfilling activities as necessary, coordination with sediment offloading and handling, coordination with sediment dewatering activities, schedule for dredging and backfilling-related submittals during construction, and assumed work days and hours of operation.
f. Equipment and personnel deployment approach (including mobilization of dredges and other ancillary equipment to be used to conduct the Work) to the Work Area and daily personnel and vessels deployment.
g. Barge anchoring procedures during Work execution.
h. Procedures and equipment to be used if sediment that is dense or hard, or otherwise resistant to dredging, is encountered.
i. Procedures for achieving the required final dredge elevations, mitigating sloughing of excess material into the removal areas shown on the Design Drawings, and maintaining vertical and horizontal control between dredge areas.
j. Real-time kinematic–digital global positioning system (RTK-DGPS) verification methods and the Contractor's means and methods for demonstrating the ability to achieve, monitor, and report that verification equipment is operating within allowable tolerances.
k. Progress survey plan, methods for tracking dredging and backfilling progress.
l. An example of a daily dredge production schematic that will be provided as part of the Daily Dredge Report (see Article 3.01 C.1.l).
m. Procedures for deploying and maintaining turbidity controls as required in Section 01 50 00 – Temporary Facilities and Controls.
n. Means and methods for maintaining all equipment used for activities associated with dredging and backfilling for the duration of the Work, and proposed solutions if equipment used to complete the Work malfunctions or has operational problems that could result in project delays.
o. Plans for preventing barge impacts to the BSFB and other employed turbidity controls, with specific information about avoiding impacts from barge corners (i.e., operating barges and equipment parallel to turbidity controls).
p. Details regarding the barge fendering system.
q. Sediment backfill method(s), equipment, and construction sequencing. Description of the material placement techniques and equipment to be utilized, including amount, type, and capabilities of the equipment.
r. Where different procedures or equipment will be used at different locations at the Site, indicate where each procedure and equipment item will be used.
s. Certification that equipment is capable of operating with no leakages of machine oil or other harmful substances into the waters of the Peekskill Bay.
t. Measure(s) to avoid or minimize possible spillage of dredge material, backfill during loading, transport and un-loading procedures.
u. Dredge monitoring and backfill progress method(s).
v. Structure and underground facilities protection method(s).

w. Details for backfill material transport including, at a minimum, the types of equipment and procedures to be used to transport backfill material from the source to the location of placement.
x. Detailed schedule of dredging and backfilling Work in accordance with the accepted Progress Schedule.

4. Waste Management Plan: Prepare one comprehensive Waste Management Plan describing means and methods for managing, transporting to the off-site processing and disposal facility(ies) and disposing all materials (see Section 01 70 00 – Execution and Closeout Requirements for additional Waste Management Plan Requirements) generated by remediation activities after removal and characterization. At a minimum, include the following:
   a. Description, number and type of barges or other vessels to be used for material management, transfer, and transport from point of removal to the off-site processing and disposal facility.
   b. Procedures and equipment for performing in-river material transfers.
   c. Procedures and equipment for performing water treatment and/or decanting from the barges and process for determining the amount of water to be decanted.
   d. Description of how any unbalanced loads will be addressed as part of or after decanting.
   e. Procedures for material stabilization (e.g., mixing procedures, stabilization/drying agent, agent ratios, etc.).

B. Information Submittals
1. Copies of all local, state, and federal transport permits, licenses, and approvals, including marine operator licenses.
2. Waste Transporter Permits: Submit copy of valid NYSDEC waste transporter permit for each transporter hauling contaminated material.
3. Waste disposal facility permit or written confirmation that the disposal facility is permitted to accept the waste material.
4. Waste Characterization Data and Waste Profiles: Submit waste characterization data and waste profile information required by processing and disposal facility(ies).
5. State Use/Disposal Determination or Approvals: Provide all correspondence, approvals, and paperwork related to State waste use or disposal determinations and/or approvals.
6. Disposal Records: Submit counter-signed manifests, weight tickets, receipts, and invoices for each disposal facility on a monthly basis throughout the Project, and concurrent with each Application for Payment.
7. Inspection Reports:
   a. Prior to vessel mobilization, provide third-party inspection reports certifying that each vessel used in performing Work is seaworthy, watertight, and includes all required safety gear, equipment, lighting and markings in accordance with applicable USCG Regulations.
8. Delivery Tickets: Submit copy of delivery ticket for each load of off-site material delivered to the Site. Each delivery ticket shall indicate Supplier name and source address, project name, contract number, date, material type, NYSDOT item number when applicable, and quantity delivered.
9. Details regarding the location and times the Engineer will be able to access the dredging and backfilling equipment prior to mobilization for inspection. In general, the Contractor will facilitate access for Engineer representatives to the Work vessels upon request.

C. During Construction
1. Pre-Dredging: Submit pre-construction bathymetric survey and TIN model indicating the dredge limits and depths relative to the pre-construction bathymetric survey to the Owner and Engineer no less than two weeks prior to commencing dredging.

2. Daily Dredge Reports: Submit the following information to the Owner and Engineer in a Daily Dredge Report:
   a. Weather conditions
   b. Peekskill Bay elevation (range)
   c. Dredge area(s) dredged that day
   d. Dredge area(s) completed that day
   e. Dredge area(s) completed to date
   f. Production rate that day
   g. Average production rate to date
   h. Debris encountered during dredging
   i. Summary of any debris removal activities for that day and location of and management of debris
   j. Quantity of debris removed (approximate volume and weight) to date
   k. Any unusual conditions encountered during dredging
   l. Visual output/schematic from dredging software (such as Trimble's HYDROPro™ Construction or similar) showing dredge areas(s) completed to date and the day's progress
   m. Equipment used that day
   n. Personnel working that day
   o. Results from any progress bathymetry surveys conducted by the Contractor
   p. Results of verification of RTK-DGPS system, in accordance with Article 2.01 D. of this Section
   q. Results of turbidity monitoring, as described in Section 01 50 00 Temporary Facilities and Controls. Should excessive water quality impacts, including turbidity, or sheen be encountered, notify the Owner or Engineer immediately.

1.04 DEFINITIONS

A. Daily Production Rate – The average daily in-situ volumetric rate of sediment removed from dredge areas. Volume and volumetric rates provided in this Section are presented as in-situ. Estimated volume will be based on data obtained from the on-board RTK-DGPS system. These volumes are for production rate estimate only and not to be used for payment.

B. Debris – Non-sediment material including, but not limited to sunken barges, wooden piles, logs, wood, vegetation, metallic objects, and man-made objects. Debris includes any non-sediment material separated or removed from the sediment prior to or during dredging. Generally, debris separated during the dredging portion of the Work is expected to be greater than 5 feet in any one direction, or non-sediment material that cannot fit within the environmental bucket when it is closed.

C. Decant water – Water that separates from sediment or debris within the sediment or debris barges.

D. Dredge Area – A horizontally and vertically defined subarea of sediment to be removed in the nearshore area.

E. In-Water Work – Any intrusive Work performed below the water level in Peekskill Bay.

F. Required Final Dredge Elevation – The required final elevation of sediment located within the dredge areas above which the Contractor is required to remove material. The required dredge depths are indicated on the Design Drawings. The Contractor will create a triangulated irregular network (TIN) based on the pre-construction survey as described in Section 01 70 00 – Execution and Closeout Requirements.

G. Water Quality Controls – Any combination of operational and engineering controls installed to mitigate water quality impacts in Peekskill Bay during execution of the Work.

1.05 UTILITIES

A. Investigate and mark the locations of all utilities prior to beginning dredging activities and implement measures to protect all utilities in accordance with Section 01 70 00 – Execution and Closeout Requirements.

B. Maintain the known existing drain outfall located at the northern end of the Peekskill Landing property implement NAPL barrier wall pipe penetration as specified in the Design Drawings.

1.06 QUANTITIES

A. The estimated dredging volumes are based on:
   1. Neat line volume based on indicated horizontal and vertical limits
   2. Allowable 0.5 foot over dredge depth over the entire removal area.
   3. Interior and exterior 2:1 (H:V) sloping/sloughing.
   4. 10% contingency (only to be paid based on Owner's approval)

B. The actual quantity removed by the Contractor may differ from the quantity estimated in the Contract Documents.

PART 2- PRODUCTS

2.01 EQUIPMENT

A. Provide debris removal equipment as described below:
   1. Equipment must be able to securely grasp debris for transfer to barges if debris is too large to be completely enclosed within the environmental dredge bucket.

B. Provide mechanical dredging equipment as described below
   1. Mechanical dredging equipment must be approved by the Engineer prior to mobilization. Hydraulic dredging is prohibited.
   2. All dredging equipment must be maintained to meet the requirements of the Work, including the immediate repair of leaks or other equipment failure.

3. The dredging equipment must include an environmental bucket with a closed, sealed lip that functions to reduce, to the extent practicable, the drainage of any overlying water trapped in the bucket and minimizes the entrainment of sediment into the water column. The dredging bucket will include a hydraulically operated closure system and be controlled to articulate or rotate the horizontal position of the dredge bucket. The dredge bucket must incorporate features to maintain closure of sediments when the bucket is being raised through the water column and to minimize, to the extent practical, the generation of suspended sediments during bucket lowering, closing, and raising in the water column. In addition, the dredging equipment must be capable of making a flat cut to minimize the amount of non-target materials removed during dredging.
4. The dredging equipment must be equipped with instrumentation that will notify the operator when the bucket is closed.
5. The Contractor must have and maintain enough barges, sizes of barges, dredge equipment, and support vessels to accommodate a production rate to meet the project work window.

C. Provide barges and barge/platform fenders in accordance with the following:
   1. Barges must be watertight and structurally sound.
   2. All corners and sides of material barges must be marked with retroreflective materials, such that they can be clearly identified by vessels travelling in the river in low light conditions.
   3. The barges and work platforms must be fitted with fenders. Fenders must be Ocean Guard Netless Low Reaction Foam Filled Fenders, 6 feet long by 2 feet in diameter, or fenders with equivalent low-reaction properties.
   4. The fenders must be attached to the barges using chains that allow the fenders to float in the water.
   5. A minimum of three fenders must be attached per side, with a 12-foot maximum center-to-center spacing.
   6. Fenders must be installed at each corner such that two 6-foot fenders form a 90-degree angle. The two corner fenders must be connected by one continuous chain that keeps them in place at the corner of the barge.

D. Provide dredge positioning equipment in accordance with the following:
   1. Equip dredge with RTK-DGPS and the necessary sensors to enable accurate horizontal and vertical positioning of the dredge bucket. The dredge bucket must have a positioning tolerance of plus or minus 2 inches vertically and plus or minus 3 inches horizontally.
   2. Provide qualified positioning equipment technical support personnel at the Work Area whenever dredging activities take place.
   3. Provide dredge positioning software with the following capabilities:
      a. Inputting a dredge prism file (an x, y, z file on a gridded 1-foot by 1-foot interval).
      b. Recording all dredge sensor information to a hard disc so that the position and movements of the dredge bucket can be reviewed (playback capability). This playback data must be provided as part of the Daily Dredge Report.
      c. Providing progress plots (e.g., heat maps, dredge progress) as part of the Daily Dredge Report (see Article 1.03 C.1)
      d. Producing plots showing the location of each dredge cut in each dredge area.
      e. Using a true three-dimensional computational system to calculate the position of the dredge bucket, considering the tilt and list of the dredge platform as well as the standard positioning sensors.
   4. Demonstrate that the dredge positioning system's tolerance is within the stated vertical and horizontal accuracies. The tolerance must include all errors associated with measuring the position of the dredge bucket.

5. Trimble's HYDROPro™ Construction is an acceptable version of such a dredge positioning system. If the Contractor chooses to use an alternate positioning system, it must be submitted in writing to and approved by the Engineer. However, the Contractor should note that the emphasis of verifications under this Contract is based upon survey accuracy, and only alternatives that provide equal or better accuracy will be approved by the Engineer.
6. Verify the RTK-DGPS for the dredge in the field at least 10 days prior to the scheduled use of the equipment. The equipment verification can be completed on-land or on-water and must demonstrate the ability to achieve, monitor, and report the specified tolerances. The Engineer must be present for the operation and must approve the verification procedures. Procedures for verification must be submitted to the Engineer for written approval at least 30 days in advance of field verification. On-land verifications are considered necessary and must be re-verified once the equipment is on the water, and before the equipment is used for dredging. The RTK-DGPS equipment must be re-verified weekly by the Contractor, with verification records provided in the Daily Dredge Report on the day the verification is conducted.
7. Verify that the system is operating within allowable tolerances (i.e., quality control check of all positioning sensors to verify that individually and together they operate within a range that satisfies the tolerance requirement) at least once per day against site benchmarks and included in the Daily Dredge Report. If, during any verification activities, the Contractor determines that the RTK-DGPS system is out of the specified positioning tolerance, dredging must be halted until the system is brought back into tolerance and is verified.
8. If, at any time during the Work, the Contractor determines that the RTK-DGPS system is malfunctioning or has failed, dredging must be halted until the system has been restored to proper operating condition, or alternate positioning systems approved by the Engineer must be used.

2.02 BACKFILLING

A. Fill materials must be in accordance with Section 31 00 00 – Earthwork.

B. Backfilling equipment must be equipped with similar RTK-DGPS equipment as the dredging equipment to facilitate placement of fill materials.

C. If the same equipment used for dredging is used for backfilling, the equipment must first be decontaminated in accordance with Specification 02 51 00 – Decontamination.

2.03 SAMPLES

A. Backfill: Collect and analyze one sample per 500 cubic yards of backfill material and a minimum of one sample per backfill source. Provide a minimum of 21 days prior to intended use of the material. Contractor is responsible for providing certification from the supplier that the sampled material is the same material that will be transported to the site.

B. Waste Characterization: Collect and analyze samples of dredged material and debris at the quantity and frequency specified by the selected processing/disposal facility.

PART 3 - EXECUTION

3.01 PREPARATION

A. Access and Site Preparation
   1. Access the site and establish support facilities in accordance with the approved Project Operations Plan.

B. Pre-Construction Survey
   1. Perform a pre-construction survey in accordance with Section 01 70 00 – Execution and Closeout Requirements.
   2. Perform pre-construction structural survey in accordance with Section 02 21 19 – Structural Surveys.

C. Geotechnical Monitoring
   1. Prior to initiating removal activities, install geotechnical monitoring devices in accordance with Section 31 00 00 – Earthwork and the approved Project Operations Plan.
   2. Confirm that geotechnical monitoring devices are operational and properly functioning prior to initiating removal activities.

D. Debris Removal
   1. Woody debris, wooden piles, and metal are expected to be encountered during the Work. Remove and segregate debris from sediment within dredge areas. Debris includes manmade and natural objects present in sediments in the dredge areas that, if not removed, will result in inefficient sediment removal.
   2. Remove debris in a manner that minimizes the resuspension of sediment to the water column. Place oversized debris, generally defined as being greater than 5 feet in any one direction or that cannot fit into the environmental bucket when it is closed, in a designated location on a sediment barge or onto a separate debris barge.
   3. Remove debris to facilitate sediment removal to the design depths/elevations and to install backfill materials and the engineered cap (where required). No debris may remain within the dredge area at elevations above the final dredge limits as shown in the Design Drawings.
   4. As necessary, debris removal (i.e., specifically for wooden pile removal) may be assisted by properly trained and certified scuba divers.
   5. Cut or break wooden piles within the dredging limits to an elevation at or below the design sediment removal depths. In general, piles may not be removed by “pulling” through the sediment. Exceptions for pulling wooden piles will be considered if the Contractor can provide information/evidence that the piles are embedded at a depth that may not present a downward migration path for potential MGP-related impacts that may be present in the sediment prior to dredging. Do not pull any wooden piles without approval from the Owner, Engineer and NYSDEC.
   6. Pulling piles and/or breaking/cutting piles at an elevation higher than the top of the restored sediment surface will not be permitted
   7. Remove wooden piles and other debris outside of the dredging limits as necessary to provide access to the work area.
   8. Remove the two sunken barges identified in the Design Drawings in their entirety.
   9. Use a designated debris barge or designated debris location within a sediment barge to temporarily stage debris. The debris staging capacity on the debris or sediment barge must be of sufficient size to accommodate various quantities of debris expected to be encountered during dredging.
   10. Transport and dispose debris with dredged sediments as appropriate for the sediment processing facility.

3.02 SCHEDULE

A. Achieve an average production rate to meet permit required work window. Be prepared to perform the Work 5 days per week, unless otherwise approved by the Owner. Work a minimum of 10 hours per day. If normal dredging operations are halted, average daily production rate requirements may be adjusted by the Owner as appropriate.

B. Increase the production rate if sediment volume is greater than anticipated, to achieve the required schedule.

3.03 INSPECTION

A. Provide the Engineer with enough notice and with means to examine areas and conditions under which dredging/excavating, filling, and grading will be performed. Engineer will advise Contractor when the Engineer is aware of conditions that may be detrimental to proper and timely Work completion. Address such conditions to the satisfaction of the Owner and Engineer before proceeding with Work related to these conditions.

B. Notification of Changes:
   1. Differing Site Conditions: Promptly notify, upon discovery and before conditions are further disturbed, through written and oral notice to the Engineer of:
      a. Physical conditions that differ materially from those indicated in Design Documents
      b. Unknown physical conditions at site, of an unexpected nature, which differ materially from those ordinarily encountered and are generally recognized as inherent in type of work provided in this project
   2. Project Delays: Upon discovery, promptly provide written and oral notice to Owner of delays in schedule due to equipment malfunction or weather.

3.04 ACCESS

A. All access to OU-2 work operations will be via the Hudson River.

B. The Contractor is responsible for transporting all water-based Work platforms and equipment to the Work Area. Personnel loading and offloading will occur at other public boating facilities at the Contractor's discretion.

C. Provide on-water transportation for Engineer, Owner and NYSDEC personnel when necessary to conduct inspection, monitoring, observation, etc.

3.05 SEQUENCEING

A. Prior to the start of in-water Work:
   1. Conduct the Pre-Construction Survey in accordance with Section 01 70 00 – Execution and Closeout Requirements.
   2. Install water quality controls (i.e., bottom sealing filter barrier and absorbent booms) in accordance with Section 01 50 00 – Temporary Facilities and Controls.

B. Prior to dredging:
   1. Install geotechnical instrumentation and monitoring equipment in accordance with Section 31 00 00 – Earthwork.
   2. Install water quality controls in accordance with Section 01 50 00 – Temporary Facilities and Controls.

C. Following installation of water quality controls, but prior to conducting dredging activities, remove debris in accordance with the Contractor's Debris Removal and Management Plan per Article 1.03.

D. Following debris removal dredge sediment in in accordance with the Contractor's Sediment Dredging and Backfill Plan per Article 1.03. Monitor dredging progress and extent relative to target elevations continuously throughout dredging using RTK-DGPS equipment as described in this Section.

E. Following dredging to the design limits, complete a Post-Removal Survey in accordance with Section 01 70 00 – Execution and Closeout Requirements, and receive confirmation from the Owner and Engineer on the completeness of dredging prior to placing any backfill materials.

F. Complete backfilling activities and conduct the post-construction survey in accordance with Section 01 70 00 – Execution and Closeout Requirements prior to removal of the turbidity curtain enclosure.

G. Turbidity levels within the limits of the turbidity curtain must be similar (i.e., within 50 nephelometric turbidity units) to the turbidity levels outside of the turbidity curtain prior to the removal of the turbidity curtain enclosure.

H. Load dredged materials to a barge, decant water and transport material to the Owner-approved processing facility. Return decant water from the barges to the dredge area prior to transport to the Owner-approved processing facility in accordance with this Section and the Contractors Waste Management Plan per Article 1.03.

3.06 SEDIMENT DREDGING

A. Dredge sediment in accordance with the Contractor's Debris Removal and Management Plan per Article 1.03.

B. During dredging, minimize the removal of excess material outside of the dredge area boundaries, to the extent practicable, while mitigating sloughing of sediment into the dredge area. Control sloughing of excess material into dredge area by establishing stable side slopes, making cuts of appropriate thickness to maintain stability, or employing other best management practices. For purposes of the design and the sediment volume estimates, side slopes of 2H:1V (horizontal:vertical) were assumed. The Contractor may determine that steeper slopes are stable, or that shallower slopes are necessary to maintain stable slopes during Work. Propose approach to minimize removal of excessive sediment in Contractor's Sediment Dredging and Backfill Plan.

C. Utilize sediment removal methods that minimize suspension of sediments during dredging and entrainment of surface water in dredged material. Use a spill plate, or approved equivalent, alongside the barges to control material sloughing off the bucket to prevent sediments from accumulating on the outside of the barge and falling into Peekskill Bay during dredging and loading operations. Remove accumulated sediment from the outside of the barges prior to leaving the dredge area.

D. Continuously monitor dredging extent and dredging progress relative to target elevations using RTK-DGPS dredge positioning equipment detailed in Part 2.01 D. Equipment-based RTK-DGPS may only be used for progress tracking.

E. Continue dredging without schedule disruption until the horizontal and vertical extents of the dredge limits have been reached. Any anticipated schedule delays following the start and prior to the completion of dredging should be discussed as soon as possible with the Owner.

F. Remove and dispose material that slides, falls, or caves into the established limits of removal due to any cause whatsoever at the Contractor's expense.

3.07 REQUIRED FINAL DREDGE ELEVATIONS

A. Target dredge depths are indicated on the design drawings. Prior to conducting any dredging, the Contractor shall create a TIN model to be used in conjunction with their RTK-DGPS dredge positioning system based on the identified dredge depths and the pre-construction survey per Section 01 70 00 – Execution and Closeout Requirements.

B. Dredge sediment within the designated removal areas at minimum to the target dredge depths. The Contractor is allowed a maximum 0.5-foot tolerance beyond the target dredge depths. The Contractor will not be compensated for dredging beyond this tolerance.

C. Confirm the final dredge elevation based on a post-removal survey per Section 01 70 00 – Execution and Closeout Requirements.

D. If post-removal surveying indicates that dredging operations failed to achieve the required dredge elevations, re-dredge the applicable dredge area(s) to achieve the required dredge elevations. Any surveying necessary to verify that re-dredging achieves the required final dredge elevations is the responsibility of the Contractor and will not result in any additional cost to the Owner.

3.08 UNAUTHORIZED DREDGING

A. Any dredging performed outside lines and grades shown or indicated and that are not approved by the Engineer and the Owner, together with removing and disposing of the associated material, will be at the Contractor's expense. Fill unauthorized dredge areas with River Backfill at Contractor's expense.

3.09 BACKFILLING

A. Provide and place fill required to restore sediment surface specified by this Section to pre-construction grades as shown in the Design Drawings and Contract Documents and in accordance with the approved Sediment Dredging and Backfill Plan.

B. Commence backfilling only at the direction of the Owner after final dredge elevations have been approved by the Engineer.

C. If the same equipment is used for backfilling as was used for dredging, first decontaminate the equipment in accordance with Section 02 51 00 – Decontamination

D. Place backfill materials in a manner to minimize turbidity/suspension of fines and encourage accurate placement of material.

E. Backfill material specifications are presented in Section 31 00 00 – Earthwork.

F. Fill that includes unacceptable material must be removed and replaced with approved fill material in accordance with the Contract Documents.

G. Do not place fill in a frozen condition or on top of frozen material.

H. Place backfill to with -0.5 to 0.0 feet of the specified elevations. Removal any material placed at elevations greater than pre-construction elevations will be completed at the Contractor's expense.

I. Confirm backfilling based on a comparison of post-construction bathymetric survey(s) required under Section 01 70 00 – Execution and Closeout Requirements and the Contractor-prepared pre-construction bathymetric survey and TIN Model.

3.10 WASTE CHARACTERIZATION

A. Characterize waste material as required by applicable federal, state and local laws, rules and regulations, as well as any additional requirements imposed by processing and disposal facility(ies). Submit copies of results to the Engineer and the Owner.

3.11 DEBRIS PROCESSING AND SEGREGATION

A. Segregate debris (as required by the processing and disposal facility) removed in accordance with Part 3.01 D. of this section into like materials and handle in accordance with the requirements of the processing/disposal facility.

B. Document proposed methods for managing debris in the Contractors Debris Removal and Management Plan.

3.12 LOADING AND TRANSPORT

A. General:
   1. Load and transport materials in watertight, structurally sound, seaworthy barges of appropriate dimensions for intended use. Maintain barges and associated equipment to meet the requirements of the Work including the prompt repair of any leaks.
   2. Inspect and clean equipment leaving the Work Area, as necessary, by manually removing any visible accumulations of solids by brushing, or other method approved by the Engineer.
   3. Overflow from barges and scows are prohibited.
   4. Load the barge evenly to maintain stability.
   5. Segregate large debris (e.g. wood piles, barge debris, boulders/concrete) within the transport barges to the extent practicable and as required by the processing/disposal facility.
   6. Provide and maintain markings on material barges that clearly indicate the barge draft. Each barge shall be used with an ullage table (i.e., displacement table) to provide information regarding tonnage in/on the barge.
   7. Coordinate barge movement in shallow water with tidal stage.
   8. Provide documentation of variations in the available draft of the river at the project site relative to tidal stage and time of shipment.
   9. A spill plate or approved equivalent shall be used so that any material that is potentially spilled during loading/unloading can be intercepted by the spill plate to mitigate material from entering the water or accumulating on the side of the vessel.

10. Secure waste materials into containers, labeled, packaged and transported in accordance with appropriate USCG, USDOT, and NYSDOT requirements. Containers used shall be DOT-approved and appropriate for the type of material being stored or transported.
11. Conduct all loading, transport and off-site disposal activities such that no spillage occurs. If unanticipated spills or leaks occur, the Contractor shall be responsible for conducting any and all activities necessary to remediate such spills at no additional cost to the Owner.

B. On-Site Loading:
   1. Conduct removal and barge loading operations in a manner to maximize the quantity of sediment/debris in the barges while maintaining barge stability and integrity and to minimize the number of barges transported to the processing facility.
   2. Sediment removal and barge loading operations may require in-river material transfer operations from small barges or partially loaded barges to optimize the sediment volume in barges transported to the off-site processing and disposal facility.
   3. Manage water that accumulates in barges on-site due to gravity dewatering of sediment as discussed in Article 3.13 of this Section.

C. Off-Site Transportation:
   1. Directly haul all waste streams from the site to the processing and disposal facility.
      a. Disposal facility to be approved by the Owner.
      b. Contractor shall conduct pre-characterization sampling and provide data and forms that are required by processing and disposal facility(ies) to such facility(ies). Submit a copy of all such information shall be provided to the Owner.
   2. Barges transported to the off-site processing and disposal facility shall contain no more than 50 percent debris or as required/specified by the processing facility.
   3. Contractor shall be required to have all appropriate local, state and federal transport permits, licenses and approvals. Transportation of all waste streams shall be in accordance with all federal, state and local laws, rules and regulations.
   4. Material containing hazardous constituents shall be segregated from nonhazardous materials, and the Contractor shall be responsible for separate storage, removal and transport of this material.

3.13 ON-WATER BARGE DECANTING

A. Decant water that accumulates within barges due to sediment gravity dewatering in the active work area, provided no sheen or free product is observed on the water surface and in accordance with NYSDEC permitting requirements:
   1. Water must be allowed to settle for a minimum of 24 hours prior to decanting and must exhibit a turbidity level less than 250 nephelometric turbidity units (NTUs).
   2. Contractor may elect to forgo settling and/or treatment and transport decant water off-site for treatment/disposal to the sediment processing facility.

B. Water decanted from barges shall be returned to the active Work Area within the turbidity curtain system.

C. Decant protocols may require adjustment dependent upon on permit requirements.

D. Stop work if the decant water return results in turbidity levels above the acceptable levels outside of the Work Area BSFB in accordance with Section 01 50 00 – Temporary Facilities and Controls.

E. Adjust the barge load to maintain barge stability if the barge load becomes unbalanced during or following decanting.

3.14 DISPOSAL OF EXCAVATED MATERIALS

A. Provide and maintain markings on material barges that clearly indicate the barge draft. Each barge shall be used with an ullage table (i.e., displacement table) to provide required information regarding tonnage located in/on the barge. Load the barge evenly to maintain stability of the barge.

B. Load and unload material handling and conveying equipment used to transport excavated material in such a manner that minimizes spillage and does not cause any other safety concerns. Contractor shall take appropriate measures to avoid or minimize possible spillage during loading and unloading procedures.

C. Use spill plate or approved equivalent so that any material that is potentially spilled during loading/unloading can be intercepted by the spill plate prior to entering the water or accumulating on the side of the vessel.

D. Conduct dredge material stabilization at the off-site processing facility (selected by the Contractor) or prior to arriving at the facility, as required by the processing facility. For bidding purposes, it is estimated that stabilization/drying agent (e.g., Portland cement, cement kiln dust [CKD]) will be added at a ratio of 10% by weight.

E. The Contractor is responsible for meeting the stabilization requirements of the selected processing/disposal facility(ies).

F. Track the actual quantity of stabilization/drying agent used and notify the Owner immediately of any load requiring greater than 10% stabilization/drying agent.

G. Prepare and execute all waste transportation and disposal documentation.

3.15 MISPLACED MATERIALS AND EQUIPMENT

A. If during execution of the Work, Contractor loses, dumps, throws overboard, sinks or misplaces any material or equipment, promptly recover and remove the same. Contractor shall give immediate verbal notice, followed by written confirmation, of the description, location and quantity of such materials to the Owner and Engineer, and shall promptly remove such materials or equipment or mark such obstructions until material or equipment can be removed.

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SECTION 35 31 16

NAPL BARRIER WALL AND COLLECTION SYSTEM

PART 1 GENERAL

1.01 DESCRIPTION

A. Scope
   1. NAPL Collection System:
      a. Furnishing and/or providing all labor, tools, materials, equipment, and services, and complete all work, installed, tested, and ready for use as described in the Contract Documents.
      b. Installing NAPL Collection Sumps, associated concrete vaults, and high-density polyethylene (HDPE) conduit pipe and fittings, as specified herein and as shown on the Design Drawings.
      c. Installing:
         1) NAPL Control Trench – to encourage the migration of NAPL that may encounter the portion of the NAPL Barrier Wall west of NAPL Collection Sump No. 1 to migrate to the NAPL Collection Sump No. 1
         2) Hydraulic Control Trench – to convey HDPE conduit piping as discussed in this Section, dampen groundwater mounding behind the portion of the NAPL Barrier Wall located east of NAPL Collection Sump No. 1.
   2. NAPL Barrier Wall:
      a. Purchasing and transporting steel sheet piles (NAPL barrier piling) and other necessary materials listed herein to the site and shown on the Design Drawings. Coordinate with the Owner as needed to facilitate delivery.
      b. Removing debris as necessary to install barrier piling, as described in Section 31 00 00 – Earthwork. This may also include in-place cutting of debris below the ground surface.
      c. Installing NAPL barrier piling to the limits and depths identified on the Design Drawings, without damaging existing structures, pavement, overhead and subsurface utilities, and other improvements adjacent to the barrier wall, as described in Section 01 70 00 – Execution and Closeout Requirements.
      d. Preventing leakage through the barrier piling interlocks by applying a sealant to the interlocks of the barrier piling prior to installation.

B. Thoroughly review the scope of the NAPL barrier piling installation, and the nature of the subsurface conditions that may be encountered during installation. The Contractor will provide the materials, equipment, and experienced workforce necessary to install the barrier piling consistent with the barrier wall design.

C. Install NAPL barrier piling from the water (i.e., equipment on barges within Peekskill Bay).

D. If the Contractor examines the barrier wall design configuration and existing subsurface information and determines that additional measures are necessary beyond the methods typically employed to install sheeting, immediately notify the Owner and Engineer. The Contractor must be equipped and prepared to implement additional measures if difficulties are encountered during installation.

E. Notify the Owner and Engineer in design piling depth cannot be reached. Following notification of this issue, do not continue NAPL barrier piling installation until the Engineer has determined and communicated the proper path forward.

F. Related Sections:
   1. Section 01 11 00 – Summary of Work
   2. Section 01 70 00 – Execution and Closeout Requirements
   3. Section 31 00 00 – Earthwork
   4. Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal

1.02 REFERENCE

A. The PilePro Group. 2014. WADIT Product Guide. Available online at: www.wadit.com.

B. Skyline Steel. 2014. AZ Hot Rolled Steel Sheet Pile Product Data Sheet. Available online at www.skylinesteel.com

C. Carboline Company. 2015. Bitumastic 300 M Product Data Sheet. Available online at http://www.carboline.us/.

1.03 SUBMITTALS

A. NAPL Barrier Wall Installation Plan: Prepare and submit a NAPL Barrier Wall Installation Plan presenting the following:
   1. Resumes for key Contractor/Subcontractor personnel, including project manager, on-site superintendent/foreman, on-site health and safety officer, and equipment operators.
   2. Shop drawings for a piling installation template, showing details and specifications of template components used to maintain vertical and horizontal alignment during installation.
   3. Anticipated approach for installing the piling to the design configuration, assuming that no significant installation difficulties are encountered.
   4. Contingency measures that the Contractor would employ in response to difficult subsurface conditions, including but not limited to, different hammer sizes and vibratory frequencies, pre-drilling/driving the alignment and attempts to partially extract and then re-advance a given sheet.
   5. Details of proposed methods to drive piling to the depths indicated on the Design Drawings and references to specific equipment makes/models and level of effort that will be used for barrier piling installation and to maintain vertical and horizontal alignment during sheet pile installation.
   6. Quality control measures and equipment that will be used to maintain watertight interlocking joints and minimize water seepage through the wall interlocks. Include the specific manufacturer(s) and name(s) of the materials to be used during sealing activities and application techniques.
   7. Proposed methods to drive piling and minimize damage to manufacturer applied epoxy coating. Include proposed methods for reapplying epoxy coating to any exposed steel surfaces above the MLLW elevation.
   8. Mill certificates for NAPL barrier piling to be used for the Work. The Engineer will check and verify that the mill certificate documentation matches markings on the piling.
   9. Manufacturer's data indicating the structural properties of the piling section(s) to be used, including moment of inertia (I), section modulus (S), thickness, and width/depth dimensions.

10. Manufacturer's data indicating the corrosion protection epoxy to be used on the portions of the sheet piles above the MLLW line.
11. Manufacturer's data indicating the sheet pile interlock sealant and installation procedures to be used.
12. Equipment, including cut sheets, to be used for piling installation. Include certification that each pile hammer delivered to the site is suitable for the anticipated conditions, including impact energy, static weight, and overhead clearance.
13. Include detail for at minimum (but not limited to), the following system components:
    a. NAPL control trench and hydraulic control trench excavation methods
    b. Trench sidewall support
    c. Trench advancement
    d. Excavated material handling
    e. NAPL collection sump installation
    f. Water management

B. Dive and Torching Plan: Submit a Dive and NAPL Barrier Wall Torching Plan presenting the following:
    1. Resumes for key Contractor/Subcontractor personnel, including a minimum of one site supervisor, two on-site divers, and one boat tender.
    2. Shop drawings for a torching progress template, showing details and specifications of template components used to maintain vertical and horizontal alignment during torching.
    3. Anticipated approach for torching the piling to the design configuration, assuming that no significant difficulties are encountered.
    4. Contingency measures that the Subcontractor would employ in response to difficult torching or diving conditions.
    5. Details of proposed means and methods to torch sheets to determined depths represented on the Design Drawings.
    6. Quality control measures that will be used to ensure that watertight interlocking joints and corrosion protection epoxy are maintained to minimize water seepage through the wall interlocks. This Plan will include the materials to be used during sealing activities and application techniques that divers may need to employ during diving processes.
    7. Commercial diving certifications for all personnel to be performing work at the Site.
    8. Equipment, including cut sheets, to be used for torching the steel sheet piling and alternative equipment or parts described if equipment breaks or does not perform as needed.

C. Manufacturer's product specifications for all proposed products.

D. The Engineer will conduct a structural and representative fabrication detail inspection of the sheet piles prior to installation.

1.04 DEFINITIONS

A. Shop Drawings – Technical drawings, diagrams, schedules, and other types of data prepared specifically by a distributor, supplier, manufacturer, subcontractor, or contractor to show part of the Work.

1.05 DELIVERY, STORAGE, AND HANDLING

A. Store steel barrier piling and miscellaneous metal on blocking so that no metal touches the ground or barge decking and water cannot collect thereon. Protected steel materials against bending under its own weight or under superimposed loads. Do not allow steel materials to sag more than a maximum of 0.25-inch.

B. Before assembly, thoroughly clean surfaces that will contact each other. Assemble parts accurately as shown on the Shop Drawings. Light drifting will be permitted to draw parts together. Drifting to match unfair holes will not be permitted. Ream with twist drills to enlarge holes as necessary to make connections in the field. Enlarging holes by burning is prohibited.

PART 2– PRODUCTS

2.01 PIPE AND FITTINGS

A. NAPL Collection Sumps:
   1. 8-inch-diameter SAE 304 Stainless Steel pipe well casing (length varies).
   2. 10-foot long 8-inch diameter SAE 304 Stainless Steel 20 slot (0.020-inch slot size) well screens installed from 9 feet above to 1 foot below the top of the confining layer surface.
   3. 5-foot long, 8-inch diameter SAE 304 Stainless Steel sump grouted in place from 1 to 6 feet below confining layer surface.

B. NAPL Collection Conduit Pipe:
   1. 4- and 6-inch diameter SDR 17 HDPE Conduit Piping. Use DriscoPlex 4200 as manufactured by Performance Pipe or approved equal. All HDPE pipe and fittings must include iron pipe sizing (IPS)
   2. Ensure that all HDPE casing pipe and fittings comply with the minimum requirements of ASTM F2648, WWA C906

2.02 MATERIALS AND EQUIPMENT

A. All materials must be new and undamaged, unless otherwise accepted by the Engineer, and must conform to ASTM A572. Unless specified otherwise in other Specifications, materials in fabricated metal items must conform to the following requirements:
   1. AZ 14-770 type sheet piling as shown on Design Drawings, without discontinuities that may affect ability to drive vertical/plumb and water tightness, or approved equal (Skyline Steel 2014).
   2. Interlocking steel barrier piling that meets or exceeds the following:
      a. ASTM A572 – Grade 50.
      b. Pile splicing is not permitted, unless requested in writing by the Contractor and approved in writing by the Engineer.
   3. Corrosion Protection
      a. Use a 100% solids high build modified polyamine epoxy (Tnemec Series 370 Tank
      b. Apply corrosion protection to the piles prior to mobilization to the Site in accordance with the manufacturer's product data sheet.

B. Hammer
   1. Select the proposed pile driving equipment, including hammers and other required items, and submit complete descriptions of the proposed equipment in accordance with Article 1.03 of this Section. Use of the proposed equipment is subject to Engineer review. Changes in the selected pile driving equipment will not be allowed after the equipment has been reviewed by the Engineer, except as specified and directed. No schedule accommodation will be made for Contractor-proposed changes to the equipment.
   2. Use vibratory or impact type pile driving hammers.
      a. Use vibratory pile driving to the extent practical, and only use impact pile driving where vibratory driving is not applicable and when approved by the Engineer.
      b. Size vibratory pile driving hammers appropriately based on available subsurface information and sheet pile specifications. Submit proposed vibratory hammer type as required in Article 1.03 of this Section.
   3. Use a pile cushion block for impact hammers (if used) to protect the barrier piling integrity.
   4. Submit the following information for each impact hammer proposed:
      a. Make and Model
      b. Ram mass weight (pounds)
      c. Anvil mass weight (pounds)
      d. Rated stroke (inches)
      e. Rated energy range (foot-pounds)
      f. Rated speed (blows per minute)
      g. Steam or air pressure, hammer, and boiler and/or compressor (pounds per square inch [psi])
      h. Rated bounce chamber pressure curves or charts, including pressure correction chart for type and length of hose used with pressure gage (psi)
      i. Pile driving cap, make, and mass weight (pounds)
      j. Cushion block dimensions and material type
      k. Power back description

C. Sheet Interlock Sealant
   1. WADIT interlock sealant by the ProPile Group for joint sealant applied prior to installation.
   2. Apply sealant to piles prior to installation in accordance with the manufacturer's specifications.

2.03 NON-CONFORMING MATERIALS

A. Inspect all pipe, fittings, and appurtenances in the presence of the Engineer upon delivery and prior to installation for conformance with the requirements of this specification and the Design Drawings.

B. The Engineer will inspect the NAPL barrier piling upon delivery. Notify/bring to the attention of the Engineer any piling that is not in conformance with the Contract Documents.

C. Immediately remove materials not conforming to project requirements from the site and replace with material conforming to the project requirements.

PART 3 - EXECUTION

3.01 PREPARATION

A. Preparation
   1. Protect structures, utilities, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards that could develop during pile driving operations. Protection will, at a minimum, meet the requirements presented in Section 01 70 00 – Execution and Closeout Requirements.
   2. Provide adequate clearance of support and protection systems within Work Areas to allow for proper installation/construction of required site features.
   3. Barrier Piling:
      a. Determine piling layout and grade by survey. Conduct survey in accordance with Section 01 70 00 – Execution and Closeout Requirements.
      b. Establish necessary piling lengths as determined in the Design Drawings.
      c. As indicated in Article 2.02 A. 3. B, apply corrosion protection to the piles prior to mobilization.
      d. Apply polyurethane gunnable sealant (WADIT) according to manufacturer's requirements.
      e. Promptly repair damages to adjacent structures caused by installing excavation support and protection systems at the Contractor's expense.

3.02 INSTALLATION

A. NAPL Barrier Wall Installation
   1. Identify the presence of underground utilities or other obstructions. Pre-trench, as needed to remove, relocate, protect, or abandon underground utilities located within the pathway of the proposed NAPL barrier piling, to facilitate installation of the NAPL barrier piling.
   2. Remove any material that halts the driving of barrier piling. Debris consisting of logs, metals, rubber, etc. was identified during the pre-design investigation. The Contractor must plan debris removal accordingly. Debris was identified at and below the ground surface. The Contractor must remove surficial debris. The Contractor must cut in place buried debris that many obstruct barrier piling installation. Debris removal and cutting methods proposed by the Contractor are subject to approval by the Engineer.
   3. Replace any damaged joint sealant prior to installation of barrier piling.
   4. Install the barrier wall within 0.5 feet of the alignment shown on the Design Drawings. Plumb barrier piling to 0.5 inches per 10 feet of piling horizontally. Drive barrier piles to within 4 inches of the tip elevations shown on the Design Drawings.
   5. Barrier piling must be installed using a template to maintain vertical and horizontal alignment during installation.
   6. Minimize leakage through the piling joints (and other locations as required) by waterproofing the interlocks as described below. The Contractor is responsible for delays, repairs, or additional Work resulting from improper sealing of piling interlocks at no cost to the Owner or the Engineer.
   7. Drive barrier piling with the equipment suitable for the conditions encountered. The method and equipment selected must deliver the necessary energy to drive the piling to the design depths shown on the Design Drawings and minimize damage to each end of barrier piling and adjacent interlocks. Employ suitable procedures to prevent damage to pile tops and joints.
   8. Monitor, prevent, and correct any tendency of barrier pilings to bend, twist, or rotate, and to pull out of the interlock. Take reasonable care throughout the installation process such that barrier pilings do not declutch. Maintain the integrity of each pile and interlocked joint during and after driving.

9. Replace barrier pilings damaged or driven outside the above tolerances. Immediately pull and replace any barrier piling ruptured in the interlock or otherwise damaged during pile driving.
10. Take necessary precautions so that adjacent piles do not penetrate deeper during pile installation.
11. Pull any barrier piling that is known to have pulled out of the interlock or is suspected of having tip or interlock damage.
12. Pile splicing is not permitted, unless requested in writing by the Contractor and approved in writing by the Engineer.
13. Maintain and confirm that corrosion protection remains on all piling above the MLLW after driving. Repair any chips or damage to the manufacturer applied epoxy corrosion coating in the field by sanding the damaged area to the bare steel and "spackling" the product into the bare area(s) to any damaged or exposed steel surfaces above the MLLW elevation.
14. Take suitable corrective action at no additional cost to the owner if barrier piling components are rejected from the Work because of deviation from location, plumbness requirement, excessive bending, twisting, pulling out of interlock, or other reasons
    a. Such corrective action must be reviewed and approved by the Engineer.
    b. Suitable action includes extracting, furnishing, and driving of replacement sheet piles, so that all sheet piles installed meet the requirements of the information provided herein.

B. NAPL Barrier Wall Torching
1. Certified commercial divers shall torch steel sheet piling within 0.3 feet of the top of the sediment surface or to the specified elevation as shown in the Design Drawings.
2. The subcontractor must perform torching in accordance with any local laws or regulations.
3. Contractor must remove all torched off pieces of steel sheet piling from Peekskill Bay before end of day of processes. Dispose of torched off pieces of steel sheet piling in accordance with local laws and regulations.
4. Monitor, prevent, and correct any tendency of barrier pilings to bend, twist, or rotate, and to pull out of the interlock during torching. Take reasonable care throughout the torching process such that barrier pilings do not declutch.
5. Maintain and confirm that corrosion protection remains on all piling above the MLLW after torching is performed. Reapply epoxy coating to any damaged or exposed steel surfaces above the MLLW elevation.

C. NAPL Collection Sump Installation
1. Install casing as shown, specified and as recommended by the manufacturer.
2. The Engineer will reject any casing that is cracked, damaged crushed, gouged or in poor condition.
3. Site the exact locations of each NAPL collection sump using a licensed surveyor.
4. Survey the top and bottom elevation for each NAPL collection sump following installation.
5. Advise drillers that well drilling operations will be conducted through imported fill and natural geologic material, potentially including rock.

D. NAPL Control Trench Installation
1. Install NAPL Control Trench behind NAPL Barrier Wall west of NAPL Collection Sump No. 1 to the depths indicated on the Design Drawings.
2. Excavate NAPL Control Trench into the underlying confining silt and clay unit.

3. Slope the bottom of the NAPL Control Trench downward (minimum 1% slope) toward NAPL Collection Sump No.1 to encourage the migration of NAPL that may encounter the portion of the NAPL Barrier Wall west of NAPL Collection Sump No. 1 to migrate to the NAPL Collection Sump No. 1.
4. Backfill NAPL Control Trench with NAPL Control Trench Backfill per Section 31 00 00 – Earthwork.

E. Hydraulic Control Trench Installation
1. Install Hydraulic Control Trench behind NAPL Barrier Wall east of NAPL Collection Sump No. 1 to the depths indicated on the Design Drawings.
2. Excavate NAPL Control Trench to an approximate elevation of -3.1 feet AMSL (NAVD 88).
3. Install NAPL collection system HDPE conduit piping in bottom of Hydraulic Control Trench in accordance with Article 3.03 of this Section.
4. Backfill Hydraulic Control Trench with Hydraulic Control Trench Backfill per Section 31 00 00 – Earthwork.

3.03 HDPE CONDUIT PIPING SUBSURFACE INSTALLATION

A. General Requirements:
1. To the extent practicable, perform as much of the pipe installation in the dry as possible by using the previously installed NAPL barrier and sloping or benching excavation, as necessary.
2. Continuously support conduit pipe and fittings along the pipeline length with pipe bedding. Do not use blocking under pipe, except where the pipe is to be laid with concrete cradle or encasement.
3. Do not install pipe at any time when there is danger of the formation of ice or the penetration of frost at the bottom of the trench.
4. Temporarily protect open ends of pipe to prevent the entry of soil, debris, and water whenever pipe laying is not actively in progress. Temporary protection will consist of watertight end caps or other means, subject to review and acceptance by the Engineer.
5. Prevent entry of water into pipe and/or flotation of installed pipe and maintain the trench in a dewatered condition to the extent possible.
6. Conduct pipe installation in accordance with the manufacturer's recommendations.

B. Alignment and Grade:
1. Install pipe along the alignment and to the grade specified on the Design Drawings.
2. Notify the Engineer if field conditions prevent conformance with the design alignment and grade.
3. Determine and maintain pipe alignment and grade with survey instrumentation capable of achieving horizontal and vertical accuracies of +/- 0.01 foot.

C. Joints:
1. Construct joints using materials and methods consistent with manufacturer's recommendations.
2. Join pressure-rated HDPE pipe using butt-fusion or electrofusion joints.
3. Join non-pressure-rated HDPE pipe using integral watertight bell ends formed on the ends of the pipe.

4. At the discretion of the Contractor and subject to review and acceptance by the Engineer or as specified on the Design Drawings, flanged connections may be used in certain instances. Where approved for use, flanged connections will consist of flange adapters welded to the pipe/fittings and stainless-steel backup rings. Connecting bolts, nuts, and washers will be stainless steel.

D. Connections to Precast Concrete Vaults:
   1. Make connections to precast concrete/steel vaults with integral boots installed within pre-cast openings.
   2. Acceptable products include A-Lok X-CEL Connectors by A-Lok Products, Inc. or approved equal.

E. Counter-Buoyancy and Protection
   1. Ballast all underwater piping using precast concrete ballast to resist buoyancy.
   2. Conform ballast to manufacturer's recommendations.
   3. Sequencing ballast installation at the Contractor's discretion as proposed in the Contactor's NAPL Barrier Wall Installation Plan (Part 1.03 A. of this specification).

3.04 QUALITY ASSURANCE/QUALITY CONTROL TESTING

A. General:
   1. Notify Owner and Engineer in writing at least 48 hours in advance of testing.
   2. Conduct all tests in presence of Owner and Engineer.
   3. Provide all apparatus and services required for testing, including:
      a. Test pumps, compressors, hoses, calibrated gages, meters, test containers, valves, fitting, and temporary pumping systems required to maintain Site operations.
      b. Temporary bulkheads, bracing, blocking, and thrust restraints.
   4. Provide air if an air test is required, power if pumping is required, and gases if gases are required.
   5. Provide means to convey fluid for hydrostatic testing into piping being tested.
   6. Repair observed leaks and repair pipe that fails to meet acceptance criteria. Retest after repair.

B. Trial Joints
   1. Prior to making any butt-fusion weld joints on any day, the Contractor will first perform a trial joint with two scrap pieces of pipe of the same diameter as the pipe to be welded for production.
   2. Cut a minimum 1-inch-wide sample lengthwise from the fused pipe and through the trial joint. Bent strap test the sample in the field according to ASTM D2657. Any indication of separation at the fusion joint will constitute a failure of the trial joint.
   3. Do not conduct any production joining until a trial joint is performed and successfully tested.

C. Leak Testing
   1. Test underwater segments of pressure-rated HDPE piping in the dry prior to submergence.
   2. Hydrostatic Testing:
      a. Test Preparation:
         1) Follow procedures described in ASTM F2164. Test duration, including time to pressurize, time for initial expansion, time at test pressure, and time to depressurize, will not exceed eight hours. If re-testing of a test section or pipeline is required, allow at least eight hours between tests.

2) Prior to testing, ensure that adequate thrust protection is in place and joints are properly installed.

b. Test Procedure:
   1) Fill pipeline slowly to minimize air entrapment and surge pressures. Do not exceed one foot of pipe length per second fill rate in pipe being tested.
   2) Expel air from pipe as required. Obtain Engineer's approval prior to tapping pipe for expelling air.
   3) Examine exposed joints and valves and make repairs to eliminate visible leakage.
   4) After specified wetting period, add fluid as required to pressurize line to required test pressure. Maintain test pressure for stabilization period of ten minutes before beginning test.
   5) After filling pipeline, gradually pressurize pipe to rest pressure and maintain required test pressure for three hours to allow for pipe expansion. During expansion, add fluid to maintain required test pressure. Begin timed test period after expansion period and other requirements are met.
   6) Do not begin timed test period until after pipe has been filled, exposed to required wetting period, air has been expelled, and pressure has stabilized.
   7) Timed Test Period: After stabilization period, maintain test pressure for at least two hours. During time testing period, add fluid as required to maintain pressure within five pounds per square inch gauge (psig) of required test pressure. After three-hour expansion phase, reduce test pressure by ten psig and do not add liquid. Test pressure will then remain steady for one hour, indicating no leakage.
   8) Pump from test container to maintain pressure test. Measure volume of fluid pumped from test container and record on test report. Record pressure at test pump at 15-minute intervals for duration of test.

c. Allowable Leakage Rates: Leakage is defined as the quantity of fluid supplied to pipe segment being tested to maintain pressure within five psig of test pressure during timed test period. Allowable leakage rates for piping are:
   1) No Leakage: Pipe with flanged, welded, fused, threaded, soldered, or brazed joints.
   2) Examination of Welds:
      a) Visually examine all welds.
      b) If defect is detected, all welds will be examined by liquid penetrant examination.
      c) At conclusion of liquid penetrant examination, remove test materials by flushing, washing, or wiping clean with applicable solvents.

3.05 RECORDS

A. Provide accurate records of each sheet pile installed and torched. Submitted records must include the following information:
   1. Pile identification number.
   2. Date and time of driving.
   3. Model of hammer and energy rating.
   4. Length of sheet pile.
   5. Elevation at ground surface.
   6. Elevation at top of pile (when driving is complete).
   7. Elevation of top of pile (when torching is complete).
   8. Length of sheet pile in the ground (when driving is complete).
   9. Length of sheet pile in the ground (when torching is complete).
   10. Rate of penetration in feet/minute.
   11. Detailed remarks concerning alignment, obstructions, etc.

B. Mark identification number clearly visible on each sheet pile with a waterproof marking device, within two feet of the top, before driving is initiated.

C. Spray paint all sheet piles rejected from the Work for any reason, at the time of rejection, with the letter “X” within three feet of both ends.

END OF SECTION

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APPENDIX C

Community Air Monitoring Plan

ARCADIS Design & Consultancy for natural and built assets

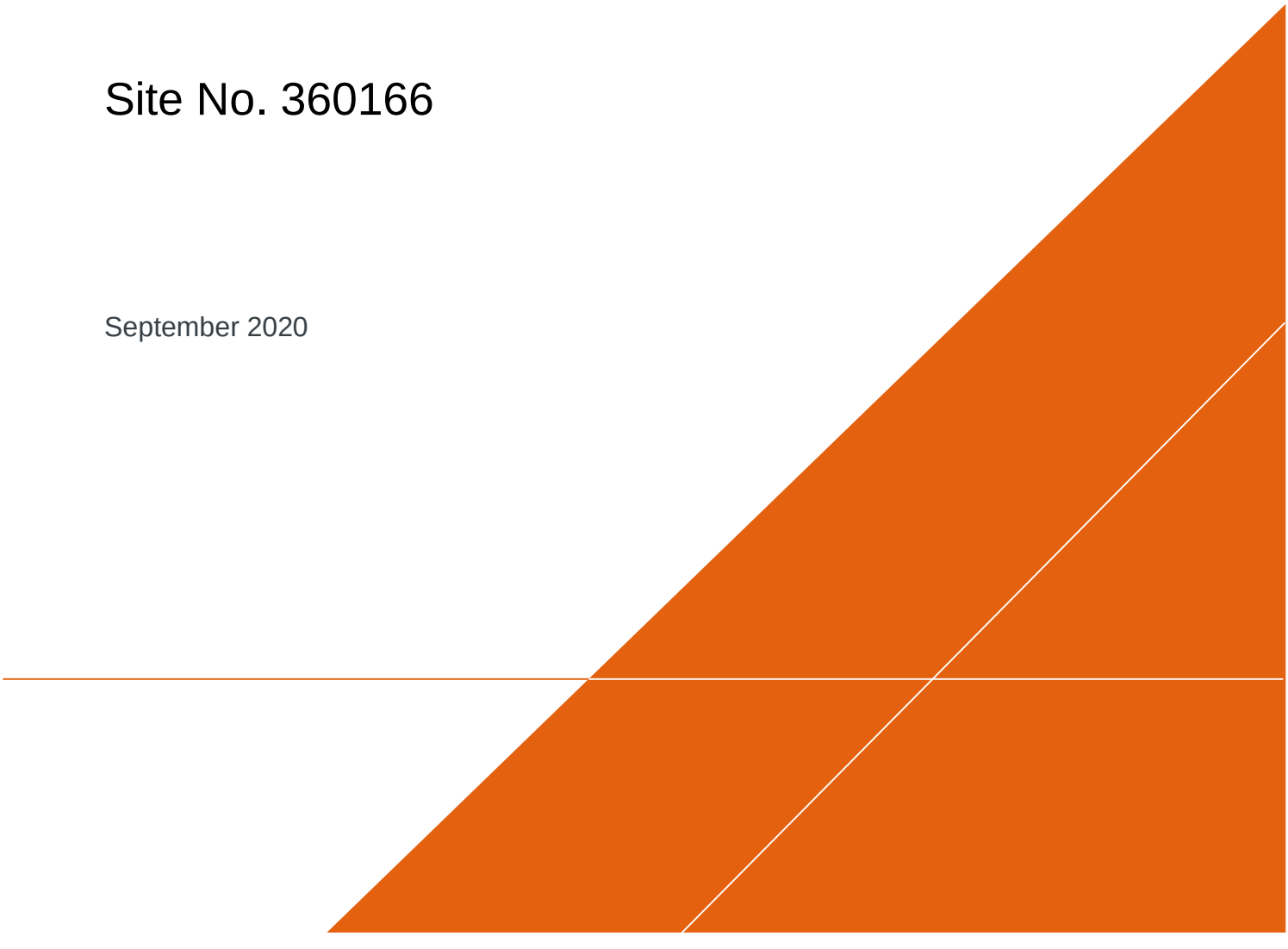
Consolidated Edison Company of New York, Inc.

COMMUNITY AIR MONITORING PLAN

Former Pemart Avenue Works MGP Site
Peekskill, New York

Site No. 360166

September 2020



COMMUNITY AIR MONITORING PLAN

Former Pemart Avenue Manufactured Gas Plant Site

Prepared for:

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Prepared by:

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Date:

September 2020

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ATTACHMENTS

I Generic CAMP

II Vapor Emission Response Plan

ACRONYMS AND ABBREVIATIONS

CAMP	Community Air Monitoring Plan
cf	cubic feet
COC	Constituent of Concern
EGP	Electric Generating Plant
MGP	Manufactured Gas Plant
µg/m3	micrograms per cubic meter
MNR	Metro North Railroad
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OU	Operable Unit
ppm	parts per million
RD	Remedial Design
ROW	Right of Way
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

1 INTRODUCTION

This *Community Air Monitoring Plan* (CAMP) has been prepared to support the implementation of remedial activities for the Former Pemart Avenue Works Manufactured Gas Plant (MGP) site located in Peekskill, New York. Details related to the remedial activities are presented in the Remedial Design Report (RD Report).

The purpose of this CAMP is to describe the monitoring activities that will be conducted by the Engineer to monitor for potential airborne releases of constituents of concern (COCs) during remedial construction. This CAMP specifies the air emission action levels, air monitoring procedures, monitoring schedule and data collection and reporting to be performed during remedial construction.

The Engineer is responsible for providing all labor, materials and equipment necessary to implement the community air monitoring program specified herein. The Contractor is ultimately responsible for confirming that all corrective measures associated with the community air monitoring program (including the control of dust, vapors and odors) are performed in accordance with this CAMP.

1.1 Location and Site Descriptions

1.1.1 Site Location and Description

The site is comprised of the Former Pemart Avenue Works MGP site and the former electric generating plant (EGP) and includes approximately 1.9 acres located on North Water Street (formerly Old Pemart Avenue), northwest of the intersection of Main Street and Water Street in the City of Peekskill, Westchester County, New York. Currently, the site is used for commercial and industrial purposes, with the exception of residential uses at the Jan Peek Homeless Shelter (200 North Water Street). In general, commercial businesses surround the site to the northwest and southeast, and a private residence/ commercial business located at 400 Main Street borders the site to the south. The Croton Expressway (US 9) is located north/northeast of the site and the Hudson Line of the MTA Metro-North Railroad (MNR) right-of-way (ROW) transects the site. The Peekskill Landing Superfund site is located south of the former MGP site along the waterfront. Peekskill Landing was used for a variety of purposes including office space, an art foundry, a lumber yard, boat repairing/storage facility, stone crushing operation, stove works, and coal storage. The Annsville Creek confluence with the Hudson River is located approximately 300 feet upstream (north) of the site boundary. A site location map is included as Figure 1.

The remediation area of the Former Pemart Avenue Works MGP site consists of an upland area designated as Operable Unit No. 1 (OU-1) and a sediment area designated as Operable Unit No. 2 (OU-2). OU-1 and OU-2 are collectively referred to herein as “the site”.

- OU-1 (Figure 1): OU-1 consists of the properties of the former MGP and the former EGP, adjacent properties to the west-southwest and the MNR ROW. The former MGP property is comprised of Tax Block 5 (Lots 7 and 8) and Tax Block 8 (Lots 1, 2, 3). The former EGP property is comprised of Tax Block 5 (Lot 9) and Tax Block 8 (Lot 4). Active remediation within OU-1 will be limited to an approximately 0.25 acre portion of the parcel used as a parking area located at 189 North Water Street (Tax ID 32.8-5-7).

- OU-2 (Figure 1): OU-2 consists of the land areas between the MNR ROW and the shoreline of Peekskill Bay and the near-shore sediment areas of Peekskill Bay that contain potentially MGP/EGP-related impacts.

1.1.2 Site History and Operation

Historical MGP operations were conducted at the site between 1899 and 1931 and primarily included the production of manufactured gas using the Lowe carbureted water gas process. In 1899 the Peekskill Gas Company (also previously named the Peekskill Lighting and Railroad Company, and the Westchester Lighting Company) commenced MGP operations, producing approximately 11 million cubic feet (cf) of carbureted gas per year. The gas production progressively increased from 11 million cf in 1899 to 116 million cf in 1930. Gas production continued through July 1, 1931, when the plant was placed on stand-by service status for several years.

The former EGP was operated by the Westchester Lighting Company from 1905 to approximately 1950. The building on the former EGP property was used to house electric generators, as well as other equipment and machinery associated with the EGP operations. The western portion of the site (i.e., where the former EGP was located) was sold in 1943. The former EGP building was expanded and occupied by the Ednal Company Optical Goods. After closure of the MGP, the site was operated by Westchester Lighting Company and later by Con Edison as a gas holder station and for gas distribution (until 1966). The remaining portion of the former MGP site was sold in 1978, with the exception of a small parcel (i.e., Block 8, Lot 2) south of North Water Street that was retained by Con Edison for use as a natural gas regulator station. The former gas regulator facility has since been removed and a new regulator has been installed in a subsurface vault beneath the sidewalk along the west side of North Water Street.

Currently, the battery house (a former EGP structure) and gas plant buildings (i.e., former Purifier House, Storage Boiler House, and Generating House) remain at the site. At the time of this remedial evaluation, the gas house is not occupied. In addition, the Jan Peek Homeless Shelter is operating in a building on the former EGP property west of the former MGP property.

1.2 Potential Air Emissions Related to Remedial Activities

As defined in the New York State Department of Health (NYSDOH) Generic CAMP (included as Attachment I), intrusive remedial activities to be performed at the sites have the potential to generate localized impacts to air quality. Remedial components that have the potential to generate air emissions include, but may not be limited to, the following:

- Excavation of upland soil
- Sediment removal
- Backfilling
- Trenching

- Material handling (e.g., separation of large debris from soils, manipulation of excavated materials to render them suitable for off-site treatment/disposal, stockpiling materials, loading materials for transport to the off-site treatment/disposal facility)
- Other ancillary intrusive activities

1.3 Air/Odor Emission Control Measures

Emission control measures to be utilized by the Contractor during material excavation/removal and handling activities are described in the following subsections.

1.3.1 Vapor and Dust Emissions

Air emissions control and fugitive dust suppression measures will be implemented by the Contractor concurrently with the activities identified above (as needed) to limit the potential for organic vapor and dust emissions from the site. Air emissions associated with excavation/removal, backfilling, material handling and stockpiling, other intrusive activities, and certain non-intrusive activities, such as mobilization, transportation and restoration activities, will be controlled as described below. The following vapor and dust control measures may be used during these activities, depending upon specific circumstances, visual observations, and air monitoring results:

- Water/BioSolve® spray
- Polyethylene sheeting (e.g., for covering excavation faces, material stockpiles)
- Minimizing excavation surface area to be exposed at any given time
- Vapor suppression / Rusmar® foam.
- Piian Odor Neutralizing Mist System

The Contractor is required to mobilize BioSolve® (or approved equivalent), Rusmar® (or approved equivalent) vapor-suppressant foam (including application equipment), and Piian odor neutralizing concentrate to the remediation work area prior to initiating intrusive activities. The Contractor must maintain an adequate supply of such materials for the duration of intrusive activities. The Contractor shall apply the BioSolve® solution using a pressure washer. If required, a dedicated Contractor worker shall be available for application of BioSolve® solution and/or Rusmar® foaming agent. The Contractor shall provide and install a Piian (or equivalent) Odor Neutralizing Mist System prior to any intrusive activities.

1.3.2 Sediment Handling

The Contractor will handle sediment (concurrently with the emission control measures identified above) in a manner that limits the potential for organic vapor and dust emissions from the site. Air emissions associated with sediment handling/stabilization will be controlled as follows:

- Odor suppressant foam, BioSolve®, or polyethylene sheeting will be used to control odors, as necessary.

- Alternate odor suppressant methods (e.g., sprays, odor suppressant foams) that are capable of suppressing site related odors may be proposed by the Contractor for review and approval by Con Edison and Engineer.

2 AIR MONITORING PROCEDURES

The community air monitoring program is intended to be a discrete program that will be operated in conjunction with the Exclusion Zone (i.e., work zone) air monitoring program. The Engineer will conduct real-time community air monitoring throughout the remedial construction. Monitoring will be conducted at representative locations at the perimeter of the exclusion zone for volatile organic compounds (VOCs) and total suspended particulates (particulates). However, particulate monitoring will not be performed during precipitation events. Additional information regarding the monitoring locations, equipment, and action levels is presented below.

Although the downwind perimeter of the exclusion zone typically represents a “worst case” for odors, vapors and dust that could migrate from the remedial construction area, as described in more detail below, a dedicated air monitoring station will be positioned immediately adjacent to the nearest corner of the Jan Peek Homeless Shelter (200 North Water Street).

2.1 Monitoring Location Selection and Deployment

VOCs and particulate monitoring station locations will be determined daily based on data from the on-site meteorological monitoring station and the nature of the anticipated remediation activities. An upwind location for both VOCs and particulate monitoring will be selected at the start of each workday. Two downwind (based on predominant wind direction) locations and a dedicated monitoring station adjacent to the Jan Peek Homeless Shelter for both VOCs and particulate monitoring will also be selected. The VOCs and particulate monitoring stations will be deployed each day before the start of work activities. If wind direction shifts radically during the workday and for an extended period of time, such that the upwind location and downwind locations no longer fall within acceptable guidelines (+/- 60° compass change from the original wind direction), the monitoring stations will be relocated so that the upwind and downwind locations are maintained. Air monitoring location changes will be documented in a field logbook.

2.2 Volatile Organic Compounds Monitoring

Real-time monitoring for VOCs will be conducted during remedial activities. As required by the NYSDOH Generic CAMP, VOCs will be monitored continuously during all intrusive and/or potential dust-generating activities (e.g., installation of erosion and sediment control measures, excavation/removal, backfilling, soil mixing/stabilization, material handling activities) using instrumentation equipped with electronic data-logging capabilities. A real-time VOC monitor (RAE MiniRAE 3000 or equivalent), equipped with either a photoionization detector, or flame ionization detector, calibrated to 100 parts per million (ppm). Isobutylene will be used to monitor for VOCs. All average concentrations (calculated for continuous 15-minute increments [e.g., 08:00 to 08:15, 08:15 to 08:30]) and any instantaneous readings taken to facilitate activity decisions will be recorded using an electronic data logger and/or in the field logbook.

2.3 Total Suspended Particulate (Particulate) Monitoring

Real-time monitoring for particulates will be conducted during remedial activities at the former MGP site. As required by the NYSDOH Generic CAMP, real-time airborne particulate monitoring will be conducted continuously during all intrusive and/or potential dust generating activities (e.g., installation of erosion and

sediment control measures, excavation/removal, backfilling, and material handling activities) using instrumentation equipped with electronic data-logging capabilities. A real-time particulate monitor (TSI 8530 DustTrak II or equivalent) will be used for particulate monitoring. All average concentrations (calculated for continuous 15-minute increments [e.g., 08:00 to 08:15, 08:15 to 08:30]) and any instantaneous readings taken to assess appropriate course of action will be recorded using an electronic data logger and/or in the field logbook.

Fugitive dust migration will be visually assessed during all work activities, and reasonable dust suppression techniques will be used during any site activities that may generate fugitive dust (Section 1.3).

2.4 Periodic Monitoring for MGP-Related Odors

The Engineer will conduct and document hourly or more frequent walks around the entire work area and adjacent to the Jan Peek Homeless Shelter to monitor for MGP-related odors. The Contractor will conduct the following in the event that odors are noticed within the work area:

- Notify Contractor personnel.
- Continue Work and employ additional odor, vapor, and dust controls to abate emissions in accordance with Section 01 50 00 – Temporary Facilities and Controls.
- Evaluate and, if necessary and appropriate, modify construction techniques.
- If MGP-related odors persist in the work area, Contractor shall stop work and Engineer shall notify the Owner.
- Identify the source or cause of MGP-related odors.
- Evaluate and, if necessary and appropriate, further modify construction techniques and employ additional odor, vapor, and dust controls to abate emissions in accordance with Section 01 50 00 - Temporary Facilities and Controls.
- Work shall not resume until authorized by Owner.

In the event that the Engineer or Contractor receive an odor complaint is received from the public, conduct the following:

- Immediately notify Owner of any odor complaints from the public. The Owner in turn should immediately notify the NYSDEC. Owner will coordinate with the complaining party and coordinate corrective measures with the Contractor.
- If a complaint is received from a member of the public by any of the on-site project team, the complainer will be directed to the on-site Owner who will discuss the complaint with the member of the public who registers the complaint. If the Owner is not available, the team staff receive the complaint, document the name of the party, their location, a contact number and/or email, and the nature of the complaint. The information shall be provided to the Owner at the first available moment after receiving the complaint.
- Implement the following in response to an odor complaint:

  - As appropriate, verify with Engineer shall the legitimacy of the complaint based on the Work being performed at the Site, the predominant wind direction, and other climatological factors.
  - Engineer shall continue monitoring and Contractor shall employ additional odor, vapor, and dust controls to abate emissions in accordance with Section 01 50 00 – Temporary Facilities and Controls.
  - Evaluate and, if necessary and appropriate, modify construction techniques.

The Engineer will prepare and maintain daily odor logs throughout the project. Each daily odor log will document at a minimum:

- Contractor's name.
- Owner's name.
- Project name.
- Site name and location.
- Date and day of the week.
- Weather conditions.
- Time and outcome of each perimeter check.
  - Note the presence or absence of MGP-related odors at the perimeter of the work area.
  - Identify the general location(s) along the work area perimeter where MGP-related odors are noticed.
- Time and outcome of any odor complaints from the public.

Daily odor monitoring logs will be included daily odor monitoring logs in weekly air monitoring report described in Section 2.7.

2.5 Action Levels

The action levels provided below are to be used to initiate corrective actions, if necessary, based on real-time monitoring. Each piece of monitoring equipment will have alarm capabilities (audible and/or visual) to indicate exceedances of the action levels specified below.

2.5.1 VOC Action Levels

As outlined in the NYSDOH Generic CAMP, if the ambient air concentration for total VOCs exceeds 5 ppm above background (i.e., upwind location) for the 15-minute average, work activities will be temporarily halted while monitoring continues. If the total VOCs concentrations readily decrease (through observation of instantaneous readings) below 5 ppm above background, then work activities can resume with continuous monitoring.

If the ambient air concentrations for total VOCs persist at levels in excess of 5 ppm above background but less than 25 ppm above background, work activities will be halted, the source of the elevated VOCs concentrations identified, corrective actions undertaken to reduce or abate the emissions, and air

monitoring will be continued. Once these actions have been implemented, work activities can resume provided the following two conditions are met:

- The 15-minute average VOCs concentrations remain below 5 ppm above background.
- The VOCs level 200 feet downwind of the monitoring location or half the distance to the nearest potential receptor or residential/commercial structure (whichever is less but in no case less than 20 feet) is below 5 ppm over background for the 15-minute average.

If the ambient air concentrations for total VOCs exceed 25 ppm above background, the work activities must cease, and emissions control measures must be implemented.

2.5.2 Particulate Action Levels

As required by NYSDOH Generic CAMP, if the average ambient air particulate concentration (calculated for continuous 15-minute increments as specified above) at any one (or more) of the downwind perimeter locations exceeds 100 micrograms per cubic meter (µg/m^3) above the average background concentration (calculated for continuous 15-minute increments as specified above), or if airborne dust is visually observed leaving the work area, then dust suppression measures will be implemented, and air monitoring will continue. Work activities may continue following the implementation of dust suppression measures provided that the average ambient air particulate concentration does not exceed 150 µg/m^3 above the average background concentration.

If, after implementation of dust suppression measures, the downwind average ambient air particulate concentration is greater than 150 µg/m^3 above the average background concentration, work activities must be stopped and re-evaluated. Work activities may resume only if dust suppression measures and other corrective actions are successful in reducing the downwind average ambient air particulate concentration to less than 150 µg/m^3 above the average background concentration and if no visible dust is observed leaving the site. The particulate concentrations will be recorded in accordance with Section 2.3 above.

2.6 Meteorological Monitoring

Meteorological monitoring will be conducted continuously at the sites using a portable meteorological monitoring system. The meteorological monitoring system will be deployed at a location in accordance with siting criteria established by the United States Environmental Protection Agency (USEPA) and the New York State Department of Environmental Conservation (NYSDEC) for meteorological monitoring systems *(Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV - Meteorological Measurements*, as revised August 1989; and New York State Air Guide-19 – "Oversight of Private Air Monitoring Networks," dated June 1989). Use of these guidelines enables the meteorological monitoring system to provide representative observations of the local meteorological conditions. A digital meteorological monitoring system (Wireless Vantage Pro2 by Davis Instruments or equivalent) will be used to collect the meteorological data. At a minimum, the meteorological monitoring system will monitor wind speed, wind direction, relative humidity and ambient temperature. The meteorological monitoring system will be equipped with electronic data-logging capabilities.

Calibration of the VOCs, particulate, and meteorological monitoring instrumentation will be conducted in accordance with each of the equipment manufacturer's calibration and quality assurance requirements. The VOC and particulate monitors will be calibrated daily (at a minimum), and calibrations will be recorded in the field logbook.

2.7 Reporting

The Engineer shall prepare a weekly (or more frequent If requested by NYSDEC and/or NYSDOH) summary of the 15-minute average community air monitoring results (for VOCs and particulates). The summary shall also include, but not be limited to, a description of community air monitoring exceedances (if any), work activities associated with the exceedances, and corrective actions implemented to address the exceedance. The weekly summary will be submitted by 12:00pm on the Monday after the week covered in the associated report in an electronic format to the following:

Table 1 - CAMP Contact List

Name	Affiliation	Contact Information
John Miller	NYSDEC	T: 518.402.9662 jymiller@gw.dec.state.ny.us
Angela Martin	NYSDOH	T: 518.402.7880 beei@health.ny.gov
Maurice Hanashy	Con Edison	T: 718.204.4145 hanashym@coned.com

A hard copy of the data will be maintained at the Engineer field office trailer.

3 EXCLUSION ZONE VAPOR EMISSION RESPONSE PLAN

The *Vapor Emission Response Plan* (Attachment II) will be implemented for contractor worker safety following an exceedance of the 15-minute average VOCs concentration of 1.5 ppm (above background) within the Exclusion Zone. The Contractor will initiate engineering controls for employee safety.

If an exceedance of the 15-minute average VOCs concentration of 5.0 ppm (above background) is measured at the perimeter of the Exclusion Zone, all excavation activities will be stopped, and the following action will be taken:

- Continue total VOCs monitoring within the Exclusion Zone and at the perimeter of the Exclusion Zone. If the total VOCs level drops below 5.0 ppm (above background) then excavation activities can resume with the addition of engineering controls or modifications to the excavation process to minimize VOCs emissions. However if the VOCs level persists above 5.0 ppm within the Exclusion Zone, based on continual observance of the total volatile organic analyzer, then the Contractor will immediately implement engineering controls such as misting the area with a vapor suppression solution of BioSolve®, covering the excavation, and backfilling, as needed, to reduce emissions and at the same time should notify the Engineer.
- If after the implementation of additional engineering controls, the total VOCs levels drop below 5.0 ppm (above background) within the Exclusion Zone and at the perimeter of the Exclusion Zone, then the excavation activity can resume provided process and work activities were adjusted to reduce emission levels
- If the total VOCs levels continue to be greater than 5.0 ppm (above background) at the perimeter of the Exclusion Zone, then all site activities must be discontinued. When the work is shut down, downwind community air monitoring (conducted by Engineer in consultation with the NYSDEC representative) will continue to be conducted to ensure that the emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission response Plan (Section 4.0).

Primary engineering controls that may be implemented to reduce emission levels include:

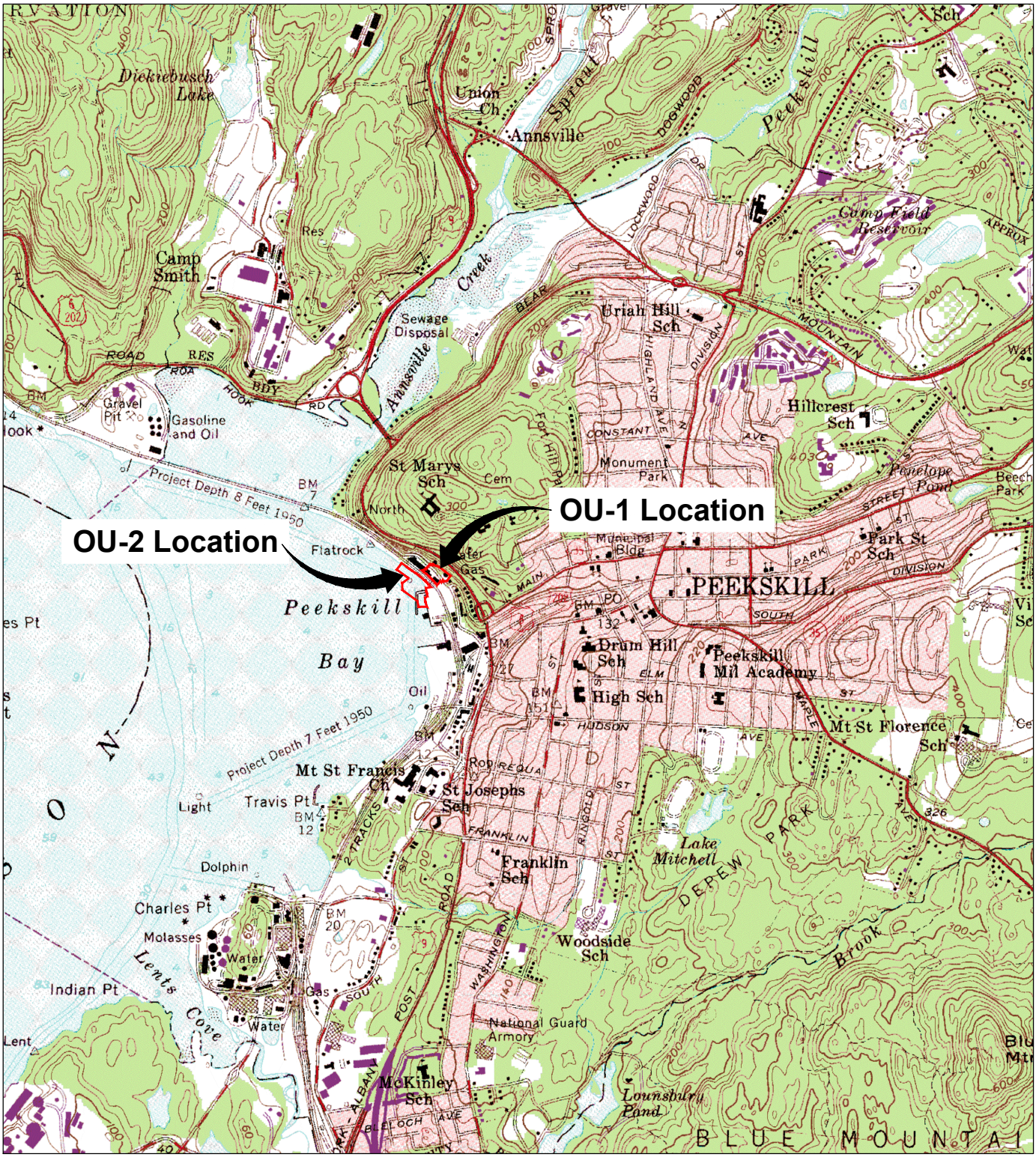
- Adding a vapor suppression solution of BioSolve® to impacted media (application in excavated areas will be a light mist as to avoid increasing solubility of wastes leading to increased groundwater contamination).
- Limiting excavation size and the surface area of exposed soil.

4 MAJOR VAPOR EMISSION RESPONSE PLAN

If after the cessation of the work activities and implementation of engineering controls, total VOCs levels exceed 5.0 ppm (above background) at the perimeter of the Exclusion Zone, then the following action will be immediately taken:

- Cover the excavation with polyethylene sheeting or clean soil.
- Notify individuals on the CAMP contact list provide in Table 1 and City of Peekskill Police Department at 914.737.3400 or 911.
- Continue real-time VOCs monitoring at the upwind, downwind and nearest receptor until VOCs level drop below 5.0 ppm.
- If total VOCs levels persist above the 5.0 ppm (above background), Oversight Engineer and NYSDEC on-site representative will consult with each other and the emergency response agencies to determine the appropriate actions to be implemented. Con Edison has ultimate authority during major vapor emission emergencies. The NYSDEC must approve any action to continue work following such an event.

FIGURE



REFERENCE: BASE MAP USGS 7.5. MIN. TOPO. QUAD., PEEKSKILL, NEW YORK, 1957, PHOTOREVISED 1981.

0 2000' 4000'

Approximate Scale: 1 in. = 2000 ft.

CON EDISON
FORMER PEMART AVENUE MGP SITE
PEEKSKILL, NEW YORK

COMMUNITY AIR MONITORING PLAN

SITE LOCATION MAP

ARCADIS Design & Consultancy for natural and built assets

FIGURE
1

C:\Users\roberlander\BIM 360\Arcadis\ANA - CON EDISON\Project Files\Former Pemart Ave Works MGP\2019\30005397.0002\01-DWG\CAMP-Fig 1-Site Location Plan.dwg LAYOUT: 1 SAVED: 12/4/2019 9:08 AM ACADVER: 23.0S (LMS TECH) PAGESETUP: ---- PLOTSTYLETABLE: ---- PLOTTED: 12/4/2019 9:10 AM BY: OBERLANDER, ROSEANNE

XREFS: IMAGES: PROJECTNAME: ----
CAMP-BDR-PNA_Peekskill.tif

ATTACHMENT I

New York State Department of Health
Generic Community Air Monitoring Plan

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical-specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for volatile organic compounds (VOCs) and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate NYSDEC/NYSDOH staff.

Continuous monitoring will be required for all <u>ground intrusive</u> activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a **continuous** basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored **continuously** at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

- If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

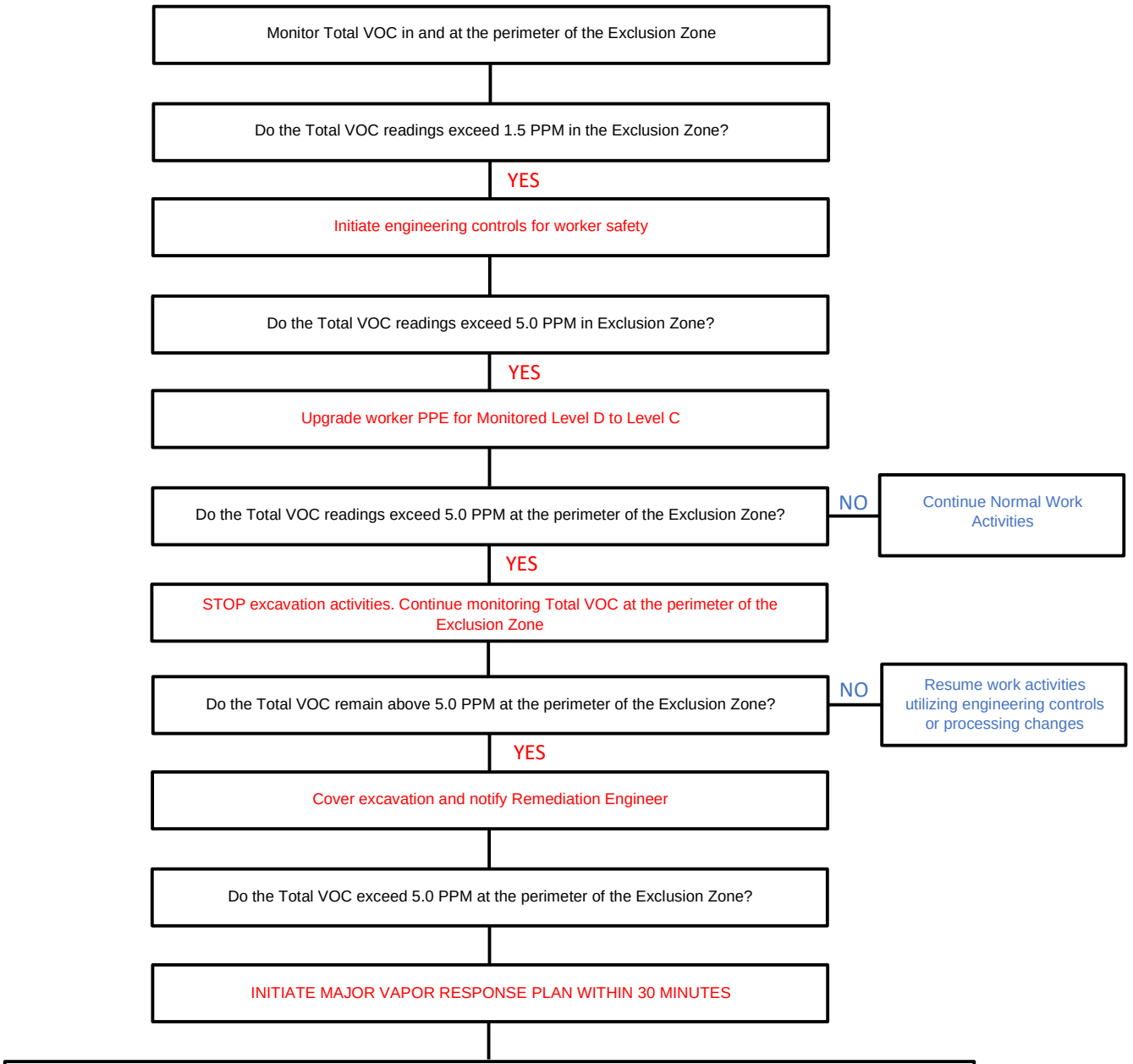
All readings must be recorded and be available for State (DEC and DOH) personnel to review.

June 20, 2000

P:\Bureau\Common\CommunityAirMonitoringPlan (CAMP)\GCAMPR1.DOC

ATTACHMENT II

FORMER PEMART AVENUE WORKS MGP SITE
PEEKSKILL, NY
NYSDEC SITE #360166
REMEDIAL DESIGN
VAPOR EMISSION RESPONSE PLAN



1. Notify Maurice Hanashy with Con Edison 718.204.4151; John Miller with the NYSDEC at 518.402.9662 and Angela Martin with the NYSDOH at 518.402.7880.
2. Total VOC levels will be monitored within 20 feet of the nearest downwind residential or commercial structure. (20-foot zone)
3. Continue air monitoring 15-minute intervals in the 20- foot zone. If two successive readings below action levels are measured, air monitoring intervals may be halted or modified by the Remediation Engineer, with approval of the NYSDEC and NYSDOH.
4. If the Total VOC levels persist above 5.0 PPM within the 20-foot zone, the Con Edison/Remediation Engineer will consult with the Emergency Response Agencies to determine appropriate actions to be implemented. Con Edison has the ultimate authority during major vapor emission emergencies

APPENDIX D

Community and Environmental Response Plan

ARCADIS Design & Consultancy for natural and built assets

Consolidated Edison Company of New York, Inc.

COMMUNITY AND ENVIRONMENTAL RESPONSE PLAN

Former Pemart Avenue Works MGP Site
Peekskill, New York
NYSDEC Site No. 360166

December 2020

COMMUNITY AND ENVIRONMENTAL RESPONSE PLAN

Former Pemart Avenue Works MGP Site
Peekskill, New York
NYSDEC Site No. 360166

Prepared for:

Consolidated Edison Company of New York, Inc.

Prepared by:

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Our Ref:

30005397

Date:

December 2020

CONTENTS

1 INTRODUCTION

This Community and Environmental Response Plan (CERP) has been prepared to support the implementation of remedial construction activities for the New York State Department of Environmental Conservation- (NYSDEC-) selected remedy for Operable Unit 2 (OU-2) at the Consolidated Edison Company of New York, Inc. (Con Edison) Former Pemart Avenue Works Manufactured Gas Plant (MGP) Site located in Peekskill, New York (the site, NYSDEC Site No. 360166). The selected remedy was presented in NYSDEC's August 2014 Decision Document (NYSDEC 2014). Details related to the remedial activities are presented in the Remedial Design Report (RD Report, Arcadis 2020).

This CERP has been prepared in accordance with NYSDEC's May 2010 DER-10: Technical Guidance for Site Investigation and Remediation (DER-10, NYSDEC 2020). The purpose of this CERP is to present a summary of the site monitoring and work practices that will be completed to address potential short-term impacts to the surrounding community and/or environmental resources during remedial construction. Additional details regarding site monitoring and work practices referenced in this CERP are presented in the RD Report and the associated Design Drawings and Technical Specifications, included as Appendices A and B to the RD Report, respectively.

Section 2 of this CERP summarizes the monitoring to be conducted during remedial construction activities; Section 3 describes site management and controls; and Section 4 presents the references cited in this CERP.

1.1 Site Location and Description

The site is comprised of the Former Pemart Avenue Works MGP site and the former electric generating plant (EGP) and includes approximately 1.9 acres located on North Water Street (formerly Old Pemart Avenue), northwest of the intersection of Main Street and Water Street in the City of Peekskill, Westchester County, New York. The site is currently used for commercial and industrial purposes, with the exception of residential uses at the Jan Peek Homeless Shelter (200 North Water Street).

In general, commercial businesses surround the site to the northwest and southeast, and a private residence/commercial business located at 400 Main Street borders the site to the south. The Croton Expressway (US 9) is located north/northeast of the site and the Hudson Line of the Metropolitan Transportation Authority (MTA) Metro-North Railroad (MNR) right-of-way (ROW) transects the site in a general north-south direction.

The Peekskill Landing State Superfund site (Site No. B00183 EPR) is located south of the former MGP site along the waterfront. The Peekskill Landing property was used for a variety of purposes including office space, an art foundry, a lumber yard, boat repairing/storage facility, stone crushing operation, stove works, and coal storage. Peekskill Landing was recently redeveloped as a community park following remedial activities completed in 2010. The Annsville Creek confluence with the Hudson River is located approximately 300 feet upstream (north) of the site boundary.

OU-2 consists of the upland area located west of the MNR ROW as well as sediments within Peekskill Bay containing MGP-related impacts.

1.2 Summary of Remedial Activities

The main elements of the selected remedy, as presented in the Decision Document, are as follows:

- Installing a non-aqueous phase liquid (NAPL) barrier wall to prevent future migration of NAPL to Peekskill Bay.
- Installing a network of NAPL collection sumps to facilitate NAPL monitoring and recovery (to the extent possible).
- Dredging NAPL-impacted sediment within Peekskill Bay to maximum depth of 5 feet below sediment surface (bss).
- Transporting dredged material to an approved, permitted off-site facility(ies) for processing, treatment, and disposal.
- Backfilling, including an amended engineered cap in areas containing minor visual indications of NAPL may remain at depths deeper than 5 feet bss.

1.2.1 Sediment Dredging Limits

Visually impacted sediments were identified and delineated by previous site investigations. Sediments within five feet or less of the sediment surface containing visual indications of site-related NAPL (e.g., blebs, blobs, stringers, seams, etc.) were identified for remediation at twelve boring locations: SD-1, SD-3, SD-8, SD-9, SD-10, SD-11, SD-13, SD-14, SD-16, SD-20, and SD-21 as shown on Design Drawing C-102. Areas of impacted sediment around these sampling locations were formed using the Theissan polygon method. The limits of the area identified as the Approximate Extent of Proposed Sediment Removal" in the Alternative Analysis Report (AAR; Arcadis 2013), were further delineated by visually clean sediment samples collected from PDI sediment borings (advanced around the perimeter of the proposed removal area). Minor visual impacts consisting of sheen were noted in sediment samples to depths up to 1.5 feet bss at two sediment sampling locations (SD-22 and SD-34) located immediately south and north (respectively) of the area of impacted sediment indicated in the AAR. These minor impacts are believed to be derived from natural lateral river motion from the primary area of NAPL-containing sediments and not as a direct discharge to the river from the upland area adjacent to these areas. These areas have also been identified for remediation.

The dredge prism was developed based on the Theissen polygons shown in the AAR and expanded during the PDI. The resulting dredge prism is shown on Design Drawing C-102.

The limits of sediment dredging were confirmed (i.e., the absence of NAPL containing sediments) by PDI sediment borings (borings PDI-SED-100, PDI-SED-102, and PDI-SED-104 through PDI-SED-106) completed around the perimeter of the anticipated limits of NAPL-containing sediment as delineated during the Remedial Investigation (RI).

1.2.2 Backfill Materials

Several backfill materials will be used during the proposed remedial activities. Various backfill materials consist of riprap, hydraulic control trench backfill; NAPL control trench backfill; River Backfill, and sand/organoclay backfill. Specification Section 31 05 – Earthwork Materials and Specification Section 35

20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal present the required grainsize gradation for each specified material.

The basis for the gradation specifications in general is to replace excavated materials with materials that are generally consistent in grainsize. The specified River Backfill material is consistent with a silty sand, is supportive of aquatic biota with other restoration fill materials used at remediation sites on the Hudson River. Samples and/or visual assessment of existing materials were used to assess the existing material grainsize and specify appropriate fill materials. Exceptions to this consist of the fill material to be used in the hydraulic control trench, NAPL control trench, and the sand/organoclay backfill.

1.2.3 NAPL Barrier Wall

The NAPL barrier wall alignment was selected to minimize construction above the mean high high water (MHHW) line while managing the accessibility challenges that are present at the site. The barrier wall alignment generally will be placed at the MHHW line (upland portion) until it would encroach on the MNR ROW, at which point it will extend into the bay at an appropriate offset from the railroad (in-water portion). The wall driven will be driven a minimum of 5 feet into the confining silt and clay unit to prevent future migration of NAPL into Peekskill Bay. Steel sheet pile was chosen as the selected wall technology dur to its ease of installation, resistance to degradation in brackish conditions and its structural integrity when compacted to other hydraulic barrier wall technologies. The portions of the barrier wall exposed to tidal influx of water at and above the mean low low water (MLLW) line will be protected from corrosion with an epoxy coating compatible with brackish conditions and site groundwater chemistry.

1.2.4 NAPL Collection Sumps

The proposed locations of NAPL collection sumps are based on geologic characterization of soil samples collected from borings completed during the RI and PDI activities. Multiple borings were completed upland and within the river to identify and map the top of the confining silt and clay unit. NAPL collection sump locations have been selected to coincide with natural low spots in the confining silt and clay surface to enhance NAPL collection.

1.3 Project Responsibilities

Responsibilities of the Owner (Con Edison), the Engineer, and the Contractor, as they relate to the implementation of this CERP, are as follows:

- Con Edison – Primary responsibility is to coordinate with the Contractor and Engineer to implement the required work activities in conformance with the RD Report. Additionally, Con Edison will provide project management/construction oversight to observe implementation of the remedial activities.
- Engineer – Responsibility is to assist Con Edison with project management/construction oversight and monitor implementation of the remedial activities. The Engineer is responsible for performing community air monitoring in accordance with a site-specific Community Air Monitoring Plan (CAMP).
- Contractor – Primary responsibility is to complete remedial activities as presented in the RD Report. The Contractor is responsible for verifying that community air monitoring is implemented prior to conducting intrusive site activities. The Contractor is responsible for implementing controls to address community air monitoring exceedances, if necessary. The Contractor is also responsible for

conducting and implementing the general site management practices and controls described in Section 3. The Contractor is also responsible for collecting imported fill and waste characterization samples, as necessary, and contracting with a laboratory for analysis of collected samples.

2 SITE MONITORING

This section presents a summary of the site monitoring that will be conducted during implementation of the remedial activities to evaluate potential short-term impacts to the surrounding community.

2.1 Community Air Monitoring

The Engineer will conduct community air monitoring during intrusive and/or potential dust-generating activities (e.g., sediment removal, backfilling, and material handling activities). The site-specific CAMP presents detailed requirements for air monitoring procedures. As indicated in the CAMP, the Engineer will conduct air monitoring procedures in accordance with the May 2010 New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (included as Attachment 1 to the CAMP) and generally consists of monitoring for volatile organic compounds (VOCs) and particulates (PM_{10}) at multiple locations to establish upwind (i.e., site background) conditions and to evaluate air quality at the downwind perimeter of the active work areas.

2.2 Odor Monitoring

Remedial construction activities are anticipated to be completed during non-peak recreational times (i.e., between September and March). Therefore, the potential for nuisances to the surrounding community from MGP odors generated during excavation activities will be reduced, given that the adjacent community will likely be indoors during the fall/winter months.

Regardless, the Engineer will conduct periodic walks around the perimeter of the work area to monitor for MGP-related odors during work hours, in accordance with the CAMP. The perimeter checks will be performed more frequently, as necessary, depending on the work being performed.

If MGP-related odors are noticed along the perimeter of the work area:

- The Contractor will continue working and employ odor, vapor, and dust suppression techniques (in accordance with Specification Section 01 50 00 – Temporary Facilities and Controls) to abate emissions, as discussed in Section 3.
- The Contractor will evaluate and modify construction techniques, if necessary and appropriate.
- The Engineer will conduct more frequent checks of the work area perimeter for MGP-related odors.

If MGP-related odors continue to be noted at the perimeter of the work area:

- The Contractor will stop work while the Engineer and Contractor re-evaluate construction techniques.
- After identifying the source or cause of the MGP-related odors, the Contractor will modify construction techniques and/or employ additional methods to abate emissions (discussed in Section 3).
- The Contractor will resume provided the measures are successful at abating noticeable odors at the work area perimeter.

Detailed requirements of odor monitoring are presented in the CAMP.

2.3 Structural Monitoring

The Contractor is required to contract with a third-party engineering firm to conduct pre- and post-construction structural surveys in accordance with Specification Section 02 21 19 – Structural Surveys. Prior intrusive work, the Contractor will conduct a pre-construction structural survey of the MNR tracks located adjacent to sediment dredging activities and barrier wall and trench installation activities and structures present on Peekskill Landing Park. The Contractor will also conduct a post-construction structural survey in the same manner and for the same features as the pre-construction structural survey. The post-construction survey serves as a comparison to the pre-construction survey to confirm pre-construction conditions were maintained.

Throughout remedial construction, the Contractor is required to contract with a third-party engineering firm to conduct movement and vibration monitoring in accordance with Specification Section 31 00 00 - Earthwork to assess and document potential movement of structures. The Contractor will be required to install optical survey and vibration monitoring points at the approximate locations shown on Design Drawing C-101 prior to initiating intrusive activities.

2.4 Noise Monitoring

Immediately following mobilization, the Contractor shall conduct background noise monitoring using a Quest Q-500 dosimeter, Larson Davis 820 Noise Meter, or equivalent. Background monitoring shall be conducted at potential receptor locations (i.e., nearest residential receptor, between 7:00 am and 5:00 pm over a three-day period to establish ambient noise levels, including noise levels generated by local truck and train traffic.

The Contractor will periodically (e.g., semi-weekly or more frequently based on potential noise complaints) monitor noise levels when remedial construction activities are being conducted. If noise complaints are received, the Contractor shall coordinate with Con Edison and the Engineer, and the Contractor may be required to employee additional noise reduction measures (e.g., noise dampening curtains, modified work sequence, mufflers, etc.).

The Site is in Peekskill waterfront district WF-2. Per City of Peekskill Code Part II, General Legislation §391-3 Sound Levels, the following noise ordinance applies to the remedial construction activities:

Activities in the C-2 Central Commercial District and in the WF-2 Waterfront District which are audible in residential zones. Indoor sound and outdoor sound produced by activities on properties within the C-2 Central Commercial District and the WF-2 Waterfront District shall not be audible at any location upon any property in a residential zoning district during the following hours, respectively:

- Prohibited indoor sound:
  - *Between the hours of 10:00 p.m. and 12:00 midnight on Sundays through Wednesdays other than the Wednesday before Thanksgiving Day and December 31;*
  - *Between the hours of 12:00 midnight and 8:00 a.m. on Mondays through Thursdays other than January 1 and Thanksgiving Day; and*
  - *Between the hours of 1:00 a.m. and 8:00 a.m. on Fridays through Sundays, January 1, and Thanksgiving Day.*

- Prohibited outdoor sound:
  - *All hours on Mondays through Wednesdays;*
  - *Between the hours of 10:00 p.m. and 12:00 midnight on Thursdays through Saturdays;*
  - *Between the hours of 12:00 midnight and 12:00 noon on Thursdays through Sundays;*
  - *Between the hours of 5:00 p.m. and 12:00 midnight on Sundays.*

At all other times indoor sound and outdoor sound produced by activities on properties within the C-2 Central Commercial District and the WF-2 Waterfront District shall not be unreasonably intrusive to any property within any residential zoning district.

3 SITE MANAGEMENT AND CONTROLS

This section presents a summary of the site management practices and controls that will be implemented to minimize potential short-term impacts to the surrounding community during remedial activities.

3.1 Site Security

Public access to the site and work areas will be restricted during the remedial activities, to the extent practicable. The Design Drawings G-103 and G-503, and Specification Section 01 50 00 – Temporary Facilities and Controls present details and requirements for providing site security (i.e., temporary fencing) and project signage.

3.2 Vapor, Dust, and Odor Control

The following construction techniques and site management practices will be used by the Contractor during the project to control vapor, dust, and odor emissions:

- Removing, backfilling, loading, handling, and unloading excavated and dredged material and clean fill material, in a manner that minimizes the generation of airborne dust
- Covering stockpiles of clean fill material with polyethylene liners (anchored appropriately to resist wind forces) before extended work breaks and at the end of each workday
- Complying with applicable erosion and sediment control requirements of Specification Section 01 50 00 – Temporary Facilities and Controls
- Complying with cleaning requirements of Specification Section 01 70 00 – Execution and Closeout Requirements

In the event that community air monitoring alert/action levels are exceeded (as presented in the CAMP) the Contractor will be required to implement the emission control and dust-suppression measures specified in Specification Section 01 50 00 – Temporary Facilities and Controls. In addition to modifying work practices to reduce potential vapor, dust, and/or odor emissions, potential controls may include:

- Polyethylene sheeting (for covering material stockpiles)
- BioSolve® PinkWater®
- Vapor suppression foam (i.e., Rusmar AC-645 Long-Duration Foam)

As warranted based on noted odors, a solution of BioSolve® PinkWater® and water (mixed per manufacturer's specifications) will be sprayed applied to uncovered dredged sediments stored on barges. As warranted based on noted odors, Rusmar AC-645 Long-Duration Foam will be applied to uncovered dredged sediments stored on barges to form a thick, viscous vapor barrier before extended work breaks and at the end of each work day.

3.3 Erosion and Sediment Controls

The Contractor will provide, install, and maintain all erosion and sediment control measures (e.g., silt fence, straw fiber rolls) to prevent silting and muddying of existing drainage systems, streams, rivers, etc. Design Drawings G-103 and G-501 and Specification Section 01 50 00 – Temporary Facilities and

Controls provide details regarding the locations and types of required controls. Additionally, the Contractor will install and maintain erosion and sediment control measures in accordance with the latest edition of the NYSDEC New York State Standards and Specifications for Erosion and Sediment Control. At a minimum, the Contractor will inspect erosion and sediment control measures daily and after storm events. The Contractor is required to summarize inspection results in weekly inspection reports. Report requirements are provided in Specification Section 01 50 00 – Temporary Facilities and Controls.

In general, the Contractor will take all precautions to prevent, or reduce to a minimum, any damage to surface water from pollution by debris, sediment, or other material, or from the manipulation of equipment and/or materials within or adjacent to existing and new drainage systems or other nearby water bodies. The Contractor is prohibited from the following:

- Dumping spoil material into any drainage way, surface waters, or unspecified locations.
- Pumping silt-laden water from trenches into any drainage way, surface waters, or unspecified locations.
- Damaging vegetation beyond the extent necessary for remedial construction.
- Disposing of trees, brush, and other debris in any stream corridors, drainage way, or unspecified locations.

Following completion of the remedial activities, the Contractor will restore disturbed surfaces as indicated in the RD Report, or as approved by Con Edison and the Engineer.

3.4 Engineering Controls

The Contractor will also be responsible for installing engineering controls (i.e., bottom-sealed filter barrier) to mitigate potential water quality impacts (i.e., turbidity and sheen) due to construction activities. Engineering controls are detailed on Design Drawing G-502 and Specification Section 01 50 00 – Temporary Facilities and Controls. The Engineer will conduct water column monitoring outside the bottom-sealed filter barrier to assess turbidity levels in accordance with Section 01 50 00 – Temporary Facilities and Controls.

The Engineer will conduct turbidity monitoring as presented in Specification Section 01 50 00 – Temporary Facilities and Controls. In general, continuous turbidity monitoring will be conducted using three remote monitors equipped with telemetry placed upstream (on monitor) and downstream (two monitors) of the dredge area limits. Turbidity action levels will be based on relative difference of 50 nephelometric units (NTUs) or greater or any visual turbidity outside of the bottom-sealed filter barrier. The Engineer will notify the Contractor of turbidity exceedances and implement appropriate response actions as presented in the Technical Specification.

3.5 Waste Management

In general, waste materials generated during implementation of the remedial activities will be managed based on the results of the waste characterization sampling to be completed by the Contractor. As indicated in Section 01 70 00 – Execution and Closeout Requirements, the Contractor is responsible for preparing a Waste Management Plan (WMP) describing the means and methods for managing material

after removal (including dewatering and solidification/stabilization of dredged materials), waste characterization, remediation waste transportation for off-site disposal.

The Contractor will be responsible for the following activities:

- Contracting and coordinating with waste disposal vendors for treatment/disposal of non-hazardous solid wastes to be generated as part of the remediation activities.
- Contracting with disposal vendors (e.g., conditionally exempt waste for low-temperature thermal desorption [LTTD] treatment facility, non-hazardous solid and liquid waste disposal facilities, etc.).
- Coordinating with potential disposal facilities to verify waste characterization analytical requirements prior to the collection of waste characterization samples.
- Preparing waste profiles for off-site treatment/disposal of solid and liquid wastes to be generated as part of the remediation activities.

Con Edison will be responsible for the following activities:

- Acting as the “Generator” for material resulting from the remediation activities for off-site treatment and/or disposal of the waste.
- Reviewing and signing waste manifests/bills of lading for shipments of waste materials generated by the remediation activities.

Con Edison, the Engineer and the Contractor will be responsible for:

- Maintaining an on-site project log containing waste manifests/bill of lading for wastes generated by the remediation activities.

3.5.1 Solid Waste

A portion of the dredged materials (i.e., sediment and debris) will be transported to a Con Edison-approved and permitted LTTD facility for treatment and disposal. Dredged solid waste not requiring LTTD treatment will be transported off-site to a Con Edison-approved non-hazardous solid waste disposal facility.

3.5.2 Liquid Waste

The Contractor will collect and containerize all construction-related waters generated during remedial activities (i.e., decontamination water and water from sediment dewatering). Following characterization, the Contractor will coordinate with an off-site disposal facility for the transportation and disposal of the liquid waste to a Con Edison-approved facility.

3.5.3 Non-Aqueous Phase Liquid

The Contractor will collect and place free-phase NAPL in appropriate containers (e.g., 55-gallon drums) if encountered in sufficient quantities to be recovered during excavation and dredging activities. The Contractor will collect and submit samples of NAPL (as appropriate) for waste characterization prior to off-site disposal at a Con Edison-approved facility. Following characterization, the Contractor will coordinate with the off-site disposal facility for the transportation and disposal of the containerized NAPL.

3.6 Transportation Controls

The Contractor will manage and dispose dredged materials (i.e., sediment and debris) in accordance with Section 35 20 00 – Mechanical Dredging, Backfill and Material Handling and Disposal. On-water barge decanting will be allowed in accordance with Section 35 20 23 – Mechanical Dredging, Backfill and Material Handling and Disposal. The Contractor shall transport dredged material off-site via barge to a Con Edison-approved processing and disposal facility(ies) for sediment stabilization, treatment via LTTD and/or non-hazardous waste disposal.

3.7 Decontamination

The Contractor will decontaminate (as necessary) all personnel and equipment that comes into contact with impacted materials prior to leaving the work areas to prevent the tracking of soil off-site (including vehicles transporting clean fill to the site), in accordance with Specification Section 02 51 00 – Decontamination. The Contractor will conduct decontamination within the decontamination area(s) as appropriate based on the work being performed. At a minimum, the Contractor will perform decontamination activities until no visible soil, sediment, debris, or stains are present on the equipment surfaces (to the satisfaction of Con Edison, the Engineer, and/or NYSDEC).

Project equipment (including, but not limited to, removal equipment, trucks, vessels, barges, pumps, and hand tools) that comes in contact with impacted materials will be decontaminated prior to using the equipment to handle clean material and/or equipment being removed from the site. Any visible soils or other debris will be promptly removed and disposed of in a manner consistent with the dredged materials.

4 REFERENCES

Arcadis 2020. Remedial Design Report, Former Pemart Avenue Works MGP Site, Peekskill, New York. March.

NYSDEC 2010. Division of Environmental Remediation-10: Technical Guidance for Site Investigation and Remediation. May.

NYSDEC 2014. Decision Document: CE – Pemart Ave-Peekskill MGP Voluntary Cleanup Program, Peekskill, Westchester County, Site Number V00566. August.

APPENDIX E

Contingency Plan

ARCADIS Design & Consultancy for natural and built assets

Consolidated Edison Company of New York, Inc.

CONTINGENCY PLAN

Former Pemart Avenue Works MGP Site
Peekskill, New York

Site No. 360166

December 2020

CONTINGENCY PLAN

Former Pemart Avenue Manufactured Gas Plant Site

Prepared for:

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Date:

December 2020

CONTENTS

1 INTRODUCTION

This Contingency Plan has been prepared to support the remedial construction activities at Operable Unit No. 2 (OU-2) of the Former Pemart Avenue Works Manufactured Gas Plant (MGP) site located in Peekskill, New York (the Site). This Contingency Plan outlines response procedures for potential emergencies that may occur during construction of the selected remedy at the Site. Details related to the selected remedy are presented in the Remedial Design Report (RD Report), to which this Contingency Plan is an appendix. Specification Sections referenced in this Contingency Plan are included in Appendix B to the RD Report.

1.1 Contingency Plan Responsibilities

The Contractor will identify a Safety Representative in accordance with Section 01 35 29, Contractor's Health and Safety Plan. The Safety Representative will be made aware of any emergencies and coordinate any response activities conducted at the Site. It is the responsibility of the Safety Representative to perform the following duties as they relate to this Contingency Plan:

- Notify local public emergency representatives (as appropriate) of the nature of Site operations and post their telephone numbers (e.g., local fire department personnel who would respond for a water rescue) in the Site trailer(s). Verify that all on-site personnel have completed applicable training.
- Conduct training as part of Site orientation and safety meetings.
- Execute evacuation, notification, and re-entry procedures as discussed in Section 3 of this Contingency Plan.

The Safety Representative will also serve as the overall Project Emergency Coordinator (PEC) and have the ultimate authority in specifying and facilitating any contingency action. If the Safety Representative is not able to perform the duties of the PEC, the Safety Representative will specify another senior individual (working for the Contractor) to serve as the PEC, such as an on-site foreman and/or supervisor. The alternate PEC shall become familiar with contingency plans developed by the Contractor and their subcontractors (if any). The PEC is also responsible for communicating requirements of this Contingency Plan to on-site personnel and subcontractors and implementing contingency measures as discussed in Section 2 of this Contingency Plan.

1.2 Emergency Contacts

Before field activities commence, the Safety Representative will inform the appropriate emergency contacts about the nature and duration of work expected at the Site, including the type of hazardous materials and potential health and safety hazards or emergencies involving these materials. Emergency services and contact numbers will be provided by the Contractor, reviewed prior to the start of remedial activities by the Safety Representative, and revised as necessary.

1.3 Identifying Hazards and Assessing Risk

The objectives during any emergency are to first protect human health and safety, and then the environment. Possible hazards to human health or the environment that may result from any emergency situation shall be identified by the PEC. The PEC shall take into consideration both direct and indirect effects of the incident. The PEC shall assess the possible risks to human health or the environment that may result from the emergency (e.g., release, fire, explosion, or severe weather conditions). The PEC shall make this assessment by:

- Identifying the materials involved in the incident
- Consulting the appropriate occupational health guideline or safety data sheets (SDSs) to determine the potential effects of exposure/release, and appropriate safety precautions
- Identifying the exposure and/or release pathways and the quantities of materials involved

Based on this information, the PEC shall determine the best course of action for dealing with the emergency and identify possible follow-up requirements (e.g., equipment repair and material disposal).

If the Contractor's personnel cannot control the incident without incurring undue risk, the PEC shall implement the Site Evacuation Procedures described in Section 3.1. If the offsite neighboring population is at risk, the PEC shall implement the Offsite Evacuation Procedures described in Section 3.2. The PEC shall notify the Engineer, Con Edison's Project Manager, and the appropriate government agencies and departments that a situation resulting in the need for evacuation has occurred. Should emergency assistance in treating injuries or carrying out the evacuation be required, the PEC shall request assistance of local emergency response personnel (e.g., ambulance service, fire department, and police department).

1.4 Conditions for Implementing the Contingency Plan

Potential emergency conditions that require implementation of this Contingency Plan include the following:

- Fire or explosion
- Occurrence of a spill or material release
- Physical or chemical injury to a worker
- Severe weather conditions

These emergency conditions are discussed in the following subsections. Additional emergency conditions that may require implementation of this Contingency Plan shall be identified by the PEC.

1.4.1 Fire and/or Explosion Conditions

Contingency procedures shall immediately be implemented upon notification that any of the following scenarios involving a fire and/or explosion are imminent or have occurred:

- A fire that causes, or could cause, the release of toxic fumes

- A fire that could possibly ignite nearby flammable materials or could cause heat-induced explosions
- A fire that could possibly spread to offsite areas
- A danger that an explosion could occur, causing a safety or health hazard
- An explosion

1.4.2 Spill or Material Release Conditions

The following scenarios involving a spill or material release, whether imminent or having already occurred, shall cause implementation of contingency procedures:

- A spill or material release that could result in the release of flammable liquids or vapors, thus causing a fire or gas explosion hazard
- A spill or material release that could cause the release of toxic vapors or fumes into the atmosphere in concentrations higher than the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs)
- A spill or material release that can be contained on Site where a potential exists for groundwater or surface water contamination
- A spill or material release that cannot be contained on Site, resulting in a potential for offsite soil contamination, sediment contamination, and/or groundwater or surface water pollution

All spills or material releases shall be reported immediately to the PEC. The PEC shall immediately identify the character, source, amount, and extent of any release. Initial identification shall be based on visual analysis of the material and location of the release. If the released material cannot be identified, samples of potentially affected media shall be taken for analysis, as directed by Con Edison.

1.4.3 Physical or Chemical Injury Conditions

The following worker injuries shall cause implementation of contingency procedures:

- Major physical injuries
- Chemical injuries
- Severe symptoms of chemical overexposure

1.4.4 Severe Weather Conditions

The following severe weather conditions, whether imminent or having already occurred, shall cause implementation of contingency procedures:

- A tornado has been sighted in the area
- A tornado warning is in effect for the area

- A lightning storm is underway in the area (storm center less than 5 miles away)
- Other severe weather or weather-induced conditions (e.g., hurricane or flood)

2 CONTINGENCY PROCEDURES

If any of the aforementioned conditions for implementing the Contingency Plan are met, the appropriate following contingency procedure(s) shall be performed.

2.1 Contingency Procedures for Fire/Explosion

When a fire or explosion appears imminent or has occurred, all normal site activity shall cease. The PEC shall assess the potential risk and severity of the situation and decide whether the emergency event is or is not readily controllable with existing portable fire extinguishers or site equipment and materials at hand. Firefighting shall not be conducted at the risk to site workers. Local fire departments shall be contacted in all situations in which fires and/or explosions have occurred. The following steps shall be taken for a localized fire:

- Contact local fire departments
- Move all personnel to an upwind location at an appropriately safe distance away
- Determine if fire is within on-site personnel capabilities to attempt initial firefighting
- Determine if smoke and/or fumes from fire are potentially impacting offsite areas
- If fire is not impacting offsite areas and is within on-site personnel capabilities, utilize the most appropriate means of extinguishing fire (e.g., fire extinguishers, water, covering with soil)
- Once fire is extinguished, containerize and properly dispose of any spilled material, runoff, or soil

If the situation appears uncontrollable and poses a direct threat to human life, fire departments shall be contacted and the evacuation procedures described in Section 3 shall be implemented. If the potential for an impending explosion is high, the entire area within a 1,000-foot radius of the fire source shall be evacuated. The PEC shall alert personnel when all danger has passed, as determined by the chief fire fighter from the responding fire departments. All equipment (e.g., fire extinguishers) used in the emergency shall be cleaned and refurbished as soon as possible after the emergency has passed so that it will be ready for use in the event of any future emergency.

2.2 Contingency Procedures for Spills or Material Releases

If a hazardous waste spill, material release, or process upset resulting in a probable vapor release is identified, the PEC shall immediately assess the magnitude and potential seriousness of the spill or release based upon:

- SDS for the material spilled or released
- Source of the release or spillage of hazardous material
- An estimate of the quantity released and the rate at which it is being released
- The direction in which the spill or air release is moving

- Personnel who may be or may have been in contact with the material, or air release, and possible injury or sickness as a result
- Potential for fire and/or explosion resulting from the situation
- Estimates of area under influence of the release

If the spill or release is determined to be within the on-site emergency response capabilities, the PEC shall initiate implementation of the necessary remedial action. If the accident is beyond the capabilities of the operating crew, all personnel not involved with emergency response activity shall be evacuated from the immediate area and the appropriate emergency response group(s) shall be contacted.

2.3 Contingency Procedures for Physical Injury to Workers

Regardless of the nature and degree of the injury, the PEC shall be notified of all injuries requiring first aid treatment of any kind. The PEC shall complete a report of the injury or incident.

Upon notification that a worker has been injured, the PEC shall immediately determine the severity of the accident, and whether the victim can be safely moved from the incident site. Local medical assistance shall be requested immediately, if appropriate.

Minor injuries sustained by workers shall be treated on Site using materials from first aid kits. Whenever possible, such treatment shall be administered by trained personnel in a “clean” support zone. Examples of minor injuries include small scrapes and blisters. Minor injuries would not be expected to trigger implementation of the Contingency Plan.

A major injury sustained by a worker will require professional medical attention at a hospital. The PEC shall immediately call for an ambulance and contact the hospital to which the injured worker will be transported. The PEC shall notify the Con Edison Project Manager as soon as practical. The hospital and ambulance should be advised of:

- The nature of the injury
- Whether the injured worker will be decontaminated prior to transport
- When and where the injury was sustained
- The present condition of the injured worker (e.g., conscious, breathing)

2.4 Contingency Procedures for Chemical Injury to Workers

Injuries involving hazardous chemicals or symptoms of severe chemical overexposure shall result in implementation of the Contingency Plan. Upon notification that a chemical injury has been sustained or severe symptoms of chemical exposure are being experienced, the PEC shall notify the hospital and ambulance of the occurrence. The PEC shall provide, to the extent possible, the following information:

- The nature of the injury (e.g., eyes contaminated)
- The chemical(s) involved
- The present condition of the injured worker (e.g., conscious, breathing)

- Whether the injured worker will be decontaminated prior to transport
- When and where the injury was sustained

The victim shall be immediately removed from the incident site using appropriate personal protective equipment (PPE) and safety equipment. Rescuers shall check for vital signs and, if possible, remove contaminated outer clothing. If the victim's eyes have been contaminated, personnel trained in administering first aid shall flush the victim's eyes with eyewash solution until the emergency response team arrives.

Details on the nature of the contaminant and methods for treating exposure or injury can be obtained from the SDSs or occupational health guidelines.

2.5 Contingency Procedures for Severe Weather

When severe weather is forecasted or occurs, the information shall be immediately relayed to the PEC. In the case of a tornado sighting, the PEC shall initiate emergency evacuation procedures (see Section 3), and all personnel shall be directed to proceed indoors after completing appropriate shutdown procedures. In the case of a tornado warning, or lightning storm, the PEC shall have operations stopped and direct all personnel to stand by for information regarding emergency procedures. Other types of weather or weather-induced conditions (e.g., hurricane or flooding) for which long-range prediction is available may also require action as identified herein.

When the severe weather has passed, the PEC shall direct the Contractor to inspect on-site equipment to check its readiness for operation prior to restarting operations. If an inspection indicates a fire, explosion, or release has occurred as a result of a severe weather condition, the contingency procedures for those events shall be followed.

3 EMERGENCY EVACUATION PROCEDURES

In the event that emergency conditions require evacuation, the site and offsite evacuation procedures described in the following subsections shall be implemented.

3.1 Site Evacuation Procedures

If an emergency occurs that requires the evacuation of an on-site area to ensure personnel safety, including, but not limited to, fire, explosion, hazardous waste/material spills, severe weather, or a significant release of vapors into the atmosphere, an air horn shall be sounded on the Site by the nearest person aware of the event. The horn shall sound continuously for approximately 15 seconds, signaling that immediate evacuation of all personnel from the area is necessary, as a result of an existing or impending danger. In areas where only two or three people are working side by side, and the need to evacuate can be communicated verbally by the nearest person aware of the event, the air horn is not necessary.

In the event that an evacuation alarm is signaled, all on-site personnel will proceed immediately to the designated rallying point(s) (established in the Contractor's Health and Safety Plan). Personnel and equipment within in-river work areas will promptly exit the river (see Section 3.3 for details regarding evacuation from in-river areas). Under no circumstance should medical treatment, first aid, or evacuation be delayed because of personal protective equipment or contamination of the victim. Areas and personnel can be surveyed and decontaminated later.

All heavy equipment in the area shall be shut down. Under no circumstances shall incoming visitors (other than emergency response personnel) be allowed to enter any area where an emergency is occurring. Visitors, observers, and all non-essential personnel present in the area of an emergency shall be instructed to evacuate the area immediately.

The Contractor's foremen and/or supervisors will be responsible for ensuring that emergency response requirements specific to their own operations are implemented. These parties shall report their activities to the PEC. The PEC, however, has final authority regarding all emergency response activities.

All non-essential personnel shall evacuate the emergency areas and notify personnel in adjacent areas to evacuate. The evacuated workers shall assemble at the site construction office trailer, where the PEC shall give directions for implementing necessary actions. In the event that the primary assembly area is involved, unapproachable, or unsafe due to the event, evacuated workers shall assemble at the alternate assembly area identified by the PEC.

Personnel are to avoid encountering smoke/gas plumes as practicable during evacuation and assembling.

The PEC shall take charge of all emergency response activities and dictate the procedures to be followed until emergency personnel arrive. The PEC shall assess the seriousness of the situation, and direct whatever efforts are necessary until the emergency response units arrive.

After initiating emergency response procedures, the PEC shall assign appropriate personnel to check and attempt to ensure that access roads are not obstructed. If traffic control is necessary (e.g., in the event of a fire or explosion), personnel who have been trained in traffic control procedures and designated at the project safety meeting shall take over these duties until emergency units arrive.

The PEC shall remain at the Site to provide any assistance requested by emergency response personnel when arriving at the Site. The PEC shall have the authority to shut down any part of or the entire project after an emergency, until the PEC deems it safe to continue operations. The PEC shall dictate any necessary changes in project safety practices as a result of the emergency that has occurred, or as required for preventing further emergencies.

3.2 Offsite Evacuation Procedures

If the PEC deems that human health beyond the site limits is at risk, the PEC shall notify the appropriate agencies and departments (e.g., Con Edison Project Manager, police, New York State Department of Environmental Conservation [NYSDEC], fire department, etc.) of the need, or potential need, to institute offsite evacuation procedures. The PEC shall provide, at a minimum, the following information:

- His or her name and telephone number
- Name and address of facility
- Time and type of incident (e.g., release, fire)
- Name and quantity of material or materials involved, to the extent this information is known
- The extent of injuries, if any
- The possible hazards to human health or environment
- Cleanup procedures

3.3 Hudson River Evacuation Procedures

In the event that the PEC determines evacuation from the Hudson River is necessary, all personnel shall proceed immediately to the designated rallying point (established in the Contractor's Health and Safety Plan). Personnel within in-river work areas will promptly return to land.

Separate evacuation routes will be established for personnel exiting the in-river work area on foot and those exiting the in-river work area via vehicle/equipment to reduce the potential for vehicle/worker accidents. These separate evacuation routes will be clearly marked in the field, with appropriate signage facing the in-river work area.

Upon exiting the in-river work area, project personnel shall proceed to the designated rallying point and immediately report to the PEC for roll call. The primary rallying point should be the material staging area or other designated area.

3.4 Personnel Accountability Procedures After Evacuation

After evacuation, all personnel are responsible for reporting to his or her foreman and/or supervisor so an accurate role call can be made. The foreman and/or supervisor will report the roll call for their group to the PEC, who is responsible for accounting for each employee. All personnel will be accounted for by name. The PEC will then report their role call to the Safety Representative.

All site personnel and visitors not assigned to a foreman and/or supervisor will be required to sign in with the Safety Representative upon entering the Site. Upon evacuation, site personnel and visitors not assigned to a foreman and/or supervisor shall proceed promptly to the designated rallying point and report directly to the Safety Representative.

3.5 Re-Entry Procedures for Hudson River

Following an evacuation, personnel and equipment will not be allowed to re-enter in-river work areas until water levels have receded while also factoring in weather forecast (e.g., re-entry may not be allowed if forecasted rainfall is expected to require another evacuation in the near future). The Safety Representative will be responsible for initiating re-entry.

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