WCD GROUP
A GALLAGHER BASSETT COMPANY

REMEDIAL INVESTIGATION WORK PLAN

3-60 Beach 79th Street

Far Rockaway

Borough of Queens, New York

NYSDEC BCP SITE #C241207

Prepared for:

79 Arverne Development LLC

220-46 73rd Avenue

Bayside, New York

Prepared by:

WCD Group

1350 Broadway, Suite 1904

New York, New York 10018

October 2018

WCD File: 17-9838

WCD Project No. 17-9838CM

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I Henry Gold certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375] and that this Remedial Investigation Work Plan 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).

APPENDICES

1.0 INTRODUCTION

1.1 Purpose

This Remedial Investigation Work Plan (RIWP) provides a detailed description of the actions that are proposed by WCD Group (WCD) to investigate the 79 Arverne Development LLC property located at 3-60 Beach 79th Street, Far Rockaway, borough of Queens, New York (hereafter referred to as the Site). The Site was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) on May 18, 2018 (BCP Site No. C241207), with 79 Arverne Development LLC as a Volunteer.

This RIWP proposes an environmental investigation to supplement fieldwork previously conducted at the Site. The objective of this remedial investigation is to obtain valid data to evaluate and define the nature and extent of contamination in uninvestigated areas at the Site. The data collected in this Remedial Investigation, in conjunction with data previously reported in WCD's Site Investigation Report (January 2018), will be used to:

- Further delineate the presence and extent of contamination in soil, groundwater and soil vapor on the Site;
- Identify sources of contamination on-site and evaluate exposure routes;
- Assess potential human exposures and environmental impacts relating to on-site conditions; and develop recommendations for remedial action as warranted by site conditions.

All proposed work will be conducted in accordance with the requirements of the New York State Department of Environmental Conservation Brownfield Cleanup Program.

1.2 Site Location and Description

The Site is located at 3-60 Beach 79th Street in the Far Rockaway neighborhood of Queens, New York (Figure 1) and occupies two adjacent lots (Lots 18 and 20) of Block 16100 on the New York City Tax Map. The Site has an area of approximately 51,050-square feet (sf), and is part of a larger 100,125 sf property bounded by Barbadoes Basin to the north, Beach Channel Drive to the south, a paved parking lot to the east, and Brandreth Creek to the west. Far Rockaway is a well-developed urban area comprised primarily of residential, commercial and industrial/manufacturing properties. A Site Location Map is included as Figure 1 (Appendix A).

The Site (Lots 18 and 20) is occupied by an asphalt parking lot and grass yard used for storing miscellaneous equipment and material. A small portion of Lot 18 lies beneath the southeastern edge of an industrial/commercial building that covers most of Lot 14. The building on Lot 14 is a two-story slab-on-grade structure currently occupied by a machine shop and a janitorial supply distributor. As noted above, the Lot 14 is not part of the Site BCP application.

The proposed future use of the Site will consist of commercial activities including the development of a state-of-the-art self-storage facility on Lot 20. The current zoning designation is M1-1, which typically

includes light industrial uses such as woodworking shops, repair shops and wholesale service and storage facilities.

1.3 Physical Setting

1.3.1 Site Topography

The property is located in a relatively level urban area with surface elevations ranging from sea level to 9 feet above mean sea level (msl), with general overall gentle downward slopes to the west, towards the adjacent building on Lot 14, followed by Brandreth Creek; and south, towards Beach Channel Drive. Sidewalk elevations at the Site boundary are approximately 5.5 to 6 feet, with a gentle overall slope to the east. The Site is located within a heavily developed and paved urban area, where extensive filling of tidal marshland is likely to have occurred.

1.3.2 Site Geology

Previous environmental investigations conducted at the property documented the presence of fill material consisting of comingled coal, cinders, broken concrete, asphalt, and apparent bottom ash and slag overlying native material. Fill material was observed from grade to approximately three to nine feet bgs. Native material present below the fill generally consisted of a 12 to 18 inch layer of olive-green clay underlain by a fine to medium sand.

1.3.3 Site Hydrogeology

Based on information from previous environmental investigations, the average depth to groundwater ranges from approximately 4 to 8 feet bgs with an average depth of approximately 5.3 feet bgs.. Based on topography, proximity of surface water bodies and groundwater elevations recorded during the Phase II investigation, groundwater is expected to flow from east to west towards existing building on Lot 14, followed by Brandreth Creek. However, groundwater elevation was observed to be influenced by tidal fluctuations during the sampling events.

1.4 Summary of Previous Environmental Investigations

Previous environmental site investigations are summarized in a Subsurface Investigation Report (SIR) prepared by WCD in January 2018 and submitted to NYSDEC in support of the BCP application. A copy of the SIR narrative, along with supporting figures and tables, is included in Appendix B.

A Limited Phase II Environmental Site Assessment Report prepared for the Site by EnviroTrac Ltd. (dated July 28, 2016) documented subsurface conditions in the vicinity of the suspect UST (Lot 14, Building Unit #4), and general soil conditions across the property. EnviroTrac reported that although slightly elevated PID readings were observed in select soil borings, no visual or olfactory indications of contamination were observed. PID readings were reportedly associated with the bog material present within the saturated zone at the Site.

Several SVOCs were detected above regulatory criteria in select soil samples collected by EnviroTrac. The elevated concentrations of SVOCs were reportedly attributed to the presence of urban fill material identified beneath the subject property.

In 2017, WCD investigated site conditions through sampling and laboratory analysis of soil, sediment and groundwater samples.

1.4.1 Soil

Twenty-eight soil borings were installed across the property, and 27 soil samples were collected and submitted for laboratory analysis of VOCs, SVOCs, TAL metals, pesticides and/or PCBs (see Tables 4 (A-D) through 6 (A-D) of the SIR). Soil analytical results were compared to NYSDEC Part 375-6 Soil Cleanup Objectives (SCOs) for both Unrestricted Use (UUSCOs) and Restricted Commercial Use (CUSCOs).

One chlorinated VOC (CVOC), trichloroethylene, (TCE) was detected above its corresponding CUSCO in soil sample B19 at a concentration of 160,000 ppb. Four CVOCs were detected above UUSCOs, including TCE, cis-1,2-dichloroethylene (cis-DCE), tetrachloroethylene (PCE), and trans-1,2-dichloroethylene (trans-DCE), in one or more samples collected across the Site. Additionally, 2-butanone (MEK) was detected in sample B8 Shallow above its corresponding UUSCO.

Multiple PAHs were detected above CUSCOs, including benzo(a)anthracene (max. 12 mg/kg), benzo(a)pyrene (max. 13 mg/kg), benzo(b)fluoranthene (max. 14 mg/kg), dibenzo(a,h)anthracene (max. 3 mg/kg) and ideno(1,2,3-cd)pyrene (max. 9.1 mg/kg). The highest concentrations of PAHs were detected in the south/southeastern portion of the subject property.

Six metals, including arsenic (max. 200 mg/kg), barium (max. 2,160 mg/kg), cadmium (max. 13 mg/kg), copper (340 mg/kg), lead (max. 2,400 mg/kg) and nickel (max. 370 mg/kg), were detected in exceedance of CUSCOs in one or more samples collected.

PCBs were detected in exceedance of CUSCOs in soil samples B13 (2.8 mg/kg) and B17 (2.3 mg/kg). Two pesticides, including Aldrin (3.1 mg/kg) and Dieldrin (2.5 mg/kg), were detected above CUSCOs in sample B17. PCB and pesticide detections were concentrated in soils located on the southeastern portion of the property.

1.4.2 Groundwater

Twelve groundwater samples were collected and analyzed for laboratory analysis of VOCs, SVOCs, metals, PCBs and/or pesticides. Groundwater sample results were compared to Ambient Water Quality Standards and Guidance Values (AWQS) presented in NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 (TOGS 1.1.1).

Six VOCs, including cis-DCE (max. 2,300 ppb), naphthalene (max. 14 ppb), p-isopropyltoluene (7.4 ppb), PCE (max. 32 ppb), TCE (max. 90 ppb) and vinyl chloride (max. 1,800 ppb), were detected in exceedance of AWQS in one or more groundwater samples collected.

Three PAHs, including benzo(a)anthracene (max. 3.2 ppb), benzo(b)fluoranthene (max. 3.3 ppb) and chrysene (max. 3.2 ppb), were detected above AWQS in groundwater samples B1 and B11. Three metals, including arsenic (max. 1,100 ppb), manganese (max. 600 ppb) and selenium (max. 115 ppb), were detected in exceedance of AWQS in one or more samples collected. No PCBs or pesticides were detected in any of the groundwater samples collected at the Site.

1.4.3 Sediment

Two sediment samples were collected and analyzed for laboratory analysis of VOCs, SVOCs, metals, PCBs and pesticides. For general screening purposes, detected concentrations of contaminants in sediment were compared to NYSDEC Part 375-6 Soil Cleanup Objectives UUSCOs and CUSCOs.

No VOCs, PCBs or Pesticides were detected in sediment samples collected at the Site. One PAH, benzo(a)pyrene (2.29 mg/kg), was detected in sample SED-1 in exceedance of its corresponding CUSCO of 1 mg/kg. One metal, Barium (max. 2,100 mg/kg), was detected in exceedance of its corresponding CUSCO of 400 mg/kg in both sediment samples collected.

1.5 Areas of Concern

Subsurface soil samples collected from several locations contain VOCs, SVOCs, metals, PCBs and pesticides in concentrations above CUSCOs and/or UUSCOs. CVOC-impacted soils are present across the Site with the highest concentrations on the southern portion of the Site at boring location B19. PCB impacts appear concentrated in the soil column from at least 2 feet to 11.5 feet bgs in the southeastern portion of the Site, and pesticides were detected in exceedance of CUSCOs at one boring location (B17) at 3 to 5 feet bgs.

CVOC impacts were detected in shallow groundwater across the Site, with highest concentrations in monitoring well B26. CVOCs were non-detect in shallow groundwater collected from monitoring wells on the southeast corner of the Site.

Additional environmental investigation is warranted to address the following data gaps:

- Soil characterization in previously inaccessible areas onsite (east-central region of Lot 18 and west-central region of Lot 20);
- Vertical and horizontal extents of PCB and pesticide impacts in soils on the south/southeastern portion of the Site;
- Vertical and horizontal extents of relatively high CVOC-impacted soil in the vicinity of soil boring B19;
- Source and/or extents of CVOC impacts in shallow and deep groundwater across the Site; and
- Potential soil vapor pathway beneath the proposed building footprint on Lot 20.

2.0 REMEDIAL INVESTIGATION WORK PLAN

This RIWP details activities proposed by WCD to further characterize the Site so that a comprehensive assessment of Site conditions, as required by the NYSDEC BCP guidelines, is completed. Previous investigations will be supplemented by the work described below to complete a site characterization in compliance with NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation, Section 3. Specifically, this investigation will be completed in order to characterize and/or investigate the following:

- Soil in the center of the Site (previously inaccessible);
- Soil in the southeastern portion of the Site (PCB/Pesticide hotspot);
- Soil in the vicinity of soil boring B19 (CVOC hotspot);
- Shallow and deep groundwater across the Site; and
- Soil vapor beneath the proposed building footprint on Lot 20.

A Proposed Remedial Investigation Site Plan depicting relevant Site features, conditions of concern, and previous and proposed sampling locations is provided as Figure 2. All proposed work will be completed in accordance with the site-specific Health and Safety Plan (Appendix D).

For the purpose of the work detailed in this RIWP, the "Client" is defined as 79 Arverne Development LLC, who will contract with the environmental consultant and/or remediation firm (hereafter referred to as the On-site Coordinator [OSC]) to provide the services detailed below. The OSC shall be a firm with experience in investigating NYSDEC BCP sites, with the capability to certify the final Remedial Investigation Report (RIR) in conformance with DER-10 Section 1.5.

2.1 Overview of Proposed Investigation

The proposed investigative services described in detail in subsequent sections of this RIWP consist of the following:

- Installation of approximately 24 soil borings and collection of one or more soil samples from each boring (Section 2.3.1) for laboratory analysis;
- Installation of five permanent shallow groundwater monitoring wells and sample collection to document groundwater quality (Section 2.3.2);
- Installation of three permanent deep groundwater monitoring wells and sample collection (Section 2.3.2);
- Collection of five subsurface soil vapor and one ambient air sample to screen for potential vapor impacts beneath the footprint of the proposed building (Section 2.3.3); and
- Preparation of a Remedial Investigation Report for the Client and the NYSDEC (Section 2.4).

Prior to, or in conjunction with, the initiation of these actions (see Section 2.3), the tasks detailed in Section 2.2, below, will also be conducted.

2.2 Proposed Site Preparation Services

This section of the RIWP provides details of activities and services necessary to be initiated and/or completed prior to the implementation of Site remediation services.

2.2.1 Agency Notification

The NYSDEC will be notified in writing at least five (5) business days prior to the start of fieldwork. Notification of subsequent field activities will be in accordance with reasonable business practice, with verbal notification for immediate (within 48 hours) activities and written notification otherwise. Written notifications will be transmitted to the NYSDEC via facsimile or electronic mail.

2.2.2 Utility Markout

Prior to the implementation of any of the investigative tasks outlined in Section 2.3, below, a request for a complete utility markout of the Site will be completed. Confirmation of underground utility locations will be secured, and a field check of the utility markout will be conducted prior to the initiation of work.

2.2.3 Documentation of Underground Structures

The presence or absence of relevant underground structures will be documented throughout the Site, either using ground penetrating radar (GPR) or other means if GPR technology. A GPR survey will be of sufficient density to document the presence or absence of small subgrade structures, including tanks. Results will be recorded on Site maps for inclusion in the Remedial Investigation Report. Should the use of GPR not be feasible, an alternative methodology will be proposed to NYSDEC for review and approval.

2.2.4 Quality Assurance Project Plan

A Quality Assurance Project Plan (QAPP, Appendix C) has been prepared, detailing procedures necessary to generate data of sufficient quality and quantity to represent successful performance of the Remedial Investigation at the Site. The QAPP includes a Sampling and Analysis Plan (SAP), detailing sampling and analysis of all media and identifies methods for sample collection and handling.

A photo-ionization detector (PID) with 11.7eV bulb will be utilized to screen encountered materials for the presence of volatile vapors. The PID will be calibrated at the onset of each workday, and a written calibration log will be maintained for this project. The PID will be calibrated to read parts per million gas equivalents of isobutylene in accordance with protocols set forth by the equipment manufacturer.

All samples will be collected in accordance with applicable DER-10 requirements, and NYSDEC and NYSDOH guidance documents and will be submitted to a NYSDOH ELAP-certified laboratory using appropriate chain of custody procedures. Dedicated, laboratory supplied containers will be used for

sample collection. Field personnel will maintain all samples at cold temperatures, as necessary, and complete all chain of custody forms.

Laboratory reports will include detailed Quality Assurance/Quality Control (QA/QC) analyses, including sample duplicates, field blanks for each non-dedicated piece of sampling equipment, and trip blanks. A Data Usability Summary Report (DUSR) will be prepared by a third, independent party, which maintains NYSDOH ELAP CLP Certification.

2.2.5 Subcontractor Coordination

Subcontractors will perform requested services under the direct supervision of the OSC. Prior to the initiation of fieldwork, all subcontractors will be notified of the components of the Health and Safety Plan (Section 2.2.6). All necessary insurance certificates will be secured from subcontractors by the Client and/or by the OSC.

2.2.6 Health and Safety Plan

The site-specific Health and Safety Plan (HASP, Appendix D) will be reviewed with on-site personnel (including subcontractors) prior to the initiation of fieldwork. Proposed work will be performed in "Level D" personal protective equipment; however, all on-site field personnel will be prepared to continue services wearing more protective levels of equipment should field conditions warrant.

2.3 Proposed Specific Investigation Services

This section of the RIWP provides a detailed description of the investigative tasks that will be conducted at the Site.

2.3.1 Soil Assessment

Soil Borings

Twenty-four (24) soil borings will be advanced on-site, with additional "step out" borings installed as necessary (based on field and instrument observations of contamination), to provide delineation data. Borings will be advanced to approximately 12 to 20 feet bgs using mechanized equipment (or hand-held boring equipment, as necessary). Boring equipment will be capable of collecting soil cores at discreet intervals and will utilize disposable acetate sleeves to prevent cross contamination. All sampling equipment will be properly decontaminated according to NYSDEC guidelines.

The proposed soil borings will be located in the field, measured to the nearest 0.5-foot relative to a permanent fixed on-site marker, and will be recorded in logbooks for inclusion in final site figures. Anticipated boring locations are depicted on the Proposed Remedial Investigation Site Plan (Figure 2).

Prior to sampling, an assessment of subsurface soil characteristics, including soil type, the presence of foreign materials, field indications of contamination (e.g., unusual coloration patterns or odors), and

instrument indications of contamination (i.e., PID readings) will be recorded during all Site investigative work.

The OSC will be responsible for identifying any materials that require special handling (soil that may contain elevated concentrations of contaminants or is grossly contaminated, hazardous materials, etc.) and will ensure that they are properly stored on-site (stockpiled on plastic and covered, or placed in approved containers), pending characterization and disposal. The OSC will ensure that any unforeseen environmental conditions are managed in accordance with applicable federal and state regulations.

Soil Sampling and Analysis

The proposed soil sampling protocol is described below. Proposed boring locations are depicted on the Proposed Remedial Investigation Site Plan (Figure 2). As discussed in further detail in Section 2.3.2 Groundwater Assessment, five of the soil borings discussed below will be converted into shallow monitoring wells.

- Soil characterization borings (center of the Site): Five soil borings will be installed to a maximum depth of twelve feet bgs, and two samples will be collected from each location. One sample will be collected from the soil interval exhibiting the highest evidence of field contamination (if encountered). If no impacted soils are identified, the sample will be collected from the observed groundwater interface. In addition, one sample will be collected from the zone most likely to be affected by historic fill and surface spills (typically the surface material between 0-2 inches bgs). . Each sample will be analyzed for VOCs using USEPA Method 8260, SVOCs (USEPA Method 8270), TAL metals (USEPA Method 6010C), PCBs (USEPA Method 8082A) and pesticides (USEPA Method 8081B).
- PCB/Pesticide delineation borings (B17, B13, B11 and B8): Seven soil borings will be installed to a maximum depth of twelve feet bgs. One sample will be collected from each boring at the observed groundwater interface.. Each sample will be analyzed for PCBs (EPA Method 8082A) and/or pesticides (EPA Method 8081B).
- CVOC delineation borings (B19): Four soil borings will be installed to a maximum depth of 20-feet bgs. One sample will be collected from each delineation boring at the soil interval corresponding to previously identified contamination (4 feet bgs), and a second sample will be collected from the observed groundwater interface. One additional deeper sample will be collected adjacent to the former B19 boring location, and from each associated delineation boring at the interval below the organic clay material. Lab analysis of the deeper delineation samples will be contingent upon initial sample results of shallow delineation samples. Each sample will be analyzed for VOCs (EPA Method 8260).

Soil sampling for VOC analysis will be conducted following USEPA Method 5035 protocols, using either dedicated Encore™ samplers, or disposable 5-gram plastic plungers to place material into laboratory-

supplied glass vials with appropriate preservatives and stir bars. Soil samples will be containerized in laboratory prepared jars, labeled, sealed, and placed in a chilled cooler for shipment to an NYS ELAP-certified laboratory.

2.3.2 Groundwater Assessment

The groundwater sampling program at the Site will involve the installation and sampling of eight permanent groundwater monitoring wells.

- Five shallow monitoring wells to a maximum depth of 15 feet bgs; and
- Three deep monitoring wells to a maximum depth of 40 feet bgs.

Proposed groundwater monitoring well locations are identified on the Proposed Remedial Investigation Site Plan (Figure 2). Protocols for well installation, development, and sample collection and laboratory submission are detailed below.

Monitoring Well Installation

Proposed monitoring wells will be constructed of two-inch diameter PVC casing with a ten-foot length of 0.01-inch slotted PVC well screen. The annular space between the well screen and the borehole will be backfilled with clean #1 silica sand to a depth of one to two feet above the well screen. A one-foot thick bentonite seal will be installed above the sand pack and allowed to hydrate before grouting the remaining annular space with cement.

A locking cap will be installed at the top of the PVC riser, and the well will be protected by a metal collar and secure flush-mounted cover. Monitoring well locations and relative elevation will be recorded in field logs and indicated on fieldwork maps. After installation is complete, monitoring locations and elevations will be surveyed.

Monitoring Well Development

Following installation, monitoring wells will be developed with a properly decontaminated mechanical pump and dedicated polyethylene tubing in order to clear fine-grained material that may have settled around the well screen and to enhance the natural hydraulic connection between the well screen and the surrounding soils. Well development will continue until discharge water is visibly free of sediment. Upon completion, all development water will be securely stored on-site in labeled 55-gallon drums pending the analytical results of groundwater sampling.

Monitoring Well Sampling and Analysis

Prior to sampling, all monitoring wells will be purged and sampled using USEPA Low Flow methodology. Sampling will be conducted using the following protocol:

1. All field conditions and observations will be recorded in the field logbook. Groundwater sampling will begin at the assumed least contaminated well (as determined from well location and/or previous data) and proceed to the presumed most contaminated well.
2. Prior to purging, headspace will be screened with the PID and the static water level (relative to the top of the casing) will be measured utilizing a decontaminated water-level meter. A submersible pump and Teflon or Teflon-lined polyethylene tubing (or equivalent equipment) will be lowered to approximately two to three feet above the bottom of the well screen.
3. Each well will be pumped at a low-flow rate of 100 to 500 milliliters per minute, and the water level will be measured approximately every three to five minutes to ensure that stabilization (drawdown of 0.3' or less) is maintained.
4. During purging, water quality parameters (turbidity, temperature, specific conductance, pH, redox potential, and dissolved oxygen) will be monitored and recorded approximately every five minutes until groundwater parameters stabilize for three consecutive readings. Parameters will be considered stabilized as follows: at least three consecutive pH readings do not vary by more than 0.1 Standard Unit; and specific conductance and temperature do not vary by more than 5% for three consecutive readings.
5. All groundwater samples will be collected in a manner consistent with NYSDEC sample collection protocols. Groundwater samples will be collected in properly labeled, laboratory provided glassware. Following sample collection, glassware will be labeled, sealed, and placed into a chilled cooler for transport to the laboratory for chemical analysis.
6. All samples will be accompanied by proper chain of custody documentation and sample information will be recorded in the field logbook. Groundwater samples will be submitted for laboratory analysis of TCL VOCs, PFAS and 1,4-dioxane.

Groundwater Flow Calculations

Tidal changes in the Barbadoes Basin have been observed to influence groundwater elevation and flow beneath the Site. Groundwater measurements will be collected over half- or full-tidal cycles to determine the effect tidal changes have upon the groundwater flow potential at the Site. Measurements will be collected with automated electronic water-level data loggers with an accuracy of measuring depth to the nearest 0.01 foot. Data will be recorded for use in updating the Direction of Groundwater Flow Map in the Remedial Investigation Report.

2.3.3 Soil Vapor Sampling

Five subsurface soil vapor samples will be collected from the approximate location of the proposed building footprint on Lot 20 to identify exposure concerns (if any) prior to development. Two of the samples will be located adjacent to the existing building on Lot 14 (Figure 2). One ambient air sample will be collected concurrently to identify potential outdoor air interferences associated with infiltration

of ambient air into the sampling canister during sample collection. Soil gas sampling will be conducted in accordance with the New York State Department of Health (NYSDOH) "Guidance for Evaluating Soil Vapor Intrusion in the State of New York", dated October 2006.

Each temporary soil vapor point will be installed utilizing direct-push boring equipment. Soil vapor samples will be collected in undisturbed soils at a depth of one to two feet above the observed groundwater interface. Proposed sampling locations are identified on the Proposed Remedial Investigation Site Plan (Figure 2).

Sampling Methodology and Analysis

The soil vapor implant will be constructed with Teflon tubing (1/8 to 1/4-inch inner diameter) extending to the proposed sampling point which will be partially filled with clean sand. The remaining upper portion of the borehole and the surface opening will be filled and sealed with moist clay to prevent surface air from entering the system. Vapor in the Teflon tubing will be screened with the PID prior to purging.

An adequate surface seal will be created at each location to prevent outdoor air infiltration, and the seal will be field-verified using a tracer gas (i.e., helium) at each location. Real-time sampling equipment (for example Radiodetection Multi-vapor Leak Locator, model MDG 2002, or equivalent) will be utilized to determine when the interior atmosphere in the enclosure reaches a concentration of 80%, and the tubing for the vapor implant will then be sampled for the tracer gas. If helium is detected in vapor at a concentration greater than 10%, the annular seal will be repaired and gas tracing performed again until less than 10% helium is detected.

For all sampling locations, the exact purge volume will be dependent on the boring depth and subsequent length of tubing. Three borehole and tubing volumes will be purged prior to collection. The purge rate will not exceed 0.2 liters per minute.

Following purging of ambient air from the collection device, soil gas samples will be collected over a two-hour period (at a rate not exceeding 0.2 liters per minute) into individual laboratory-certified clean 2.7 liter Summa canisters equipped with two-hour flow regulators. All soil vapor samples will be submitted for laboratory analysis of VOCs via USEPA method TO-15.

2.3.4 Management of Investigation-Derived Waste

Soil borings will be backfilled with cuttings from the originating borehole to within 12-inches of the surface, unless soil is grossly contaminated or the boring has penetrated a confining layer. Waste soil generated during the investigation will be stored on plastic sheeting or within approved DOT containers prior to being returned to the borehole. Any materials remaining at the Site at the end of the workday will be properly covered and secured, and all materials remaining after completion of the fieldwork will be containerized and disposed off-site at a permitted facility. Discarded personal protective equipment

and other fieldwork supplies will be disposed as municipal solid waste. Monitoring well purge water and other fluids will be securely stored on-site in closed containers, pending the results of groundwater sampling and/or waste characterization, and disposed at an appropriate facility.

2.4 Documentation of Environmental Conditions

The RIR will be prepared at the completion of all fieldwork services in accordance with DER-10, in order to document environmental conditions. The RIR will summarize the nature of environmental conditions for all areas of concern and will present a Qualitative Human Health Exposure Assessment.

The RIR will include: a summary of Site history and previous investigations; documentation of Site conditions and the implementation of the RIWP; and provide complete analytical findings and compare results to applicable Standards, Criteria, and Guidance (SCG). Complete data summary tables, figures showing all exceedances of SCGs, fieldwork and construction logs, laboratory and data validation reports, CAMP monitoring data and waste disposal documentation will be provided. All laboratory data presented in the RIR will be submitted to NYSDEC in an acceptable electronic data deliverable (EDD) format.

The Qualitative Human Health Exposure Assessment will be completed in accordance with DER-10 and will assess: source areas on site; transport mechanisms; points of exposure; actual and potential exposure routes; potential receptors.

The results of the RAR and Qualitative Exposure Assessment will be utilized to refine the conceptual model of the Site and evaluate remedial alternatives.

3.0 PROJECT SCHEDULE

The following schedule is anticipated for this project:

Week	Task
0	NYSDEC approval of the RIWP
1	Utility markout (may include supplemental private markout, if warranted); selection of driller; secure insurance, NYSDEC notification of fieldwork
2-3	Installation of borings; collection of soil samples, completion of monitoring wells, collection of soil vapor samples
3-4	Collection of groundwater samples, documentation of groundwater elevation
4-6	Analysis of soil , soil vapor and groundwater samples
6-10	Preparation of revised RIR; submission to the NYSDEC of Remedial Alternatives Report and Remedial Work Plan

APPENDIX A

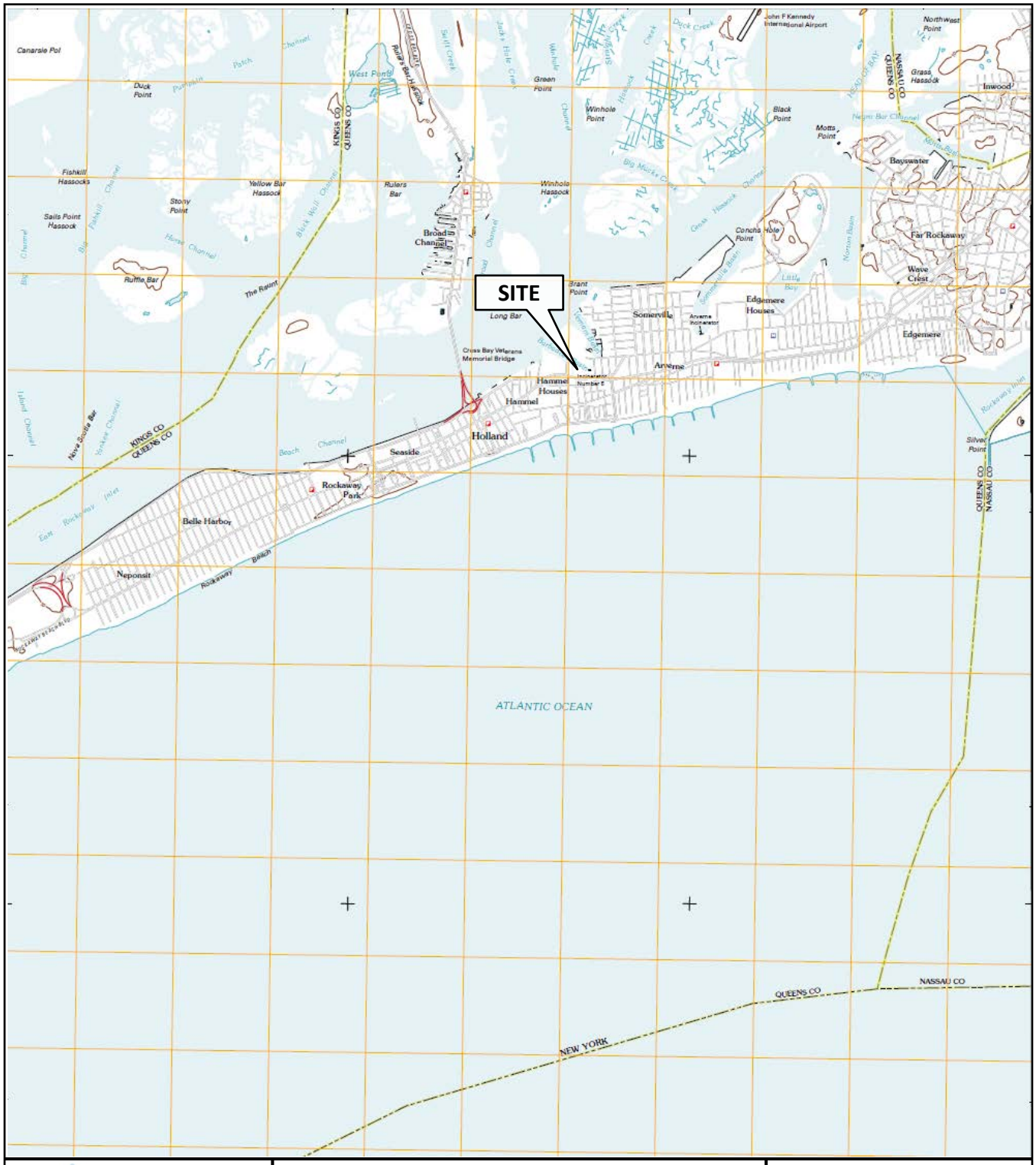
APPENDIX B

APPENDIX C

APPENDIX D

APPENDIX E

Appendix A



WCD GROUP
For pivotal matters.™

1350 Broadway, Suite 1904
New York, NY 10018-0891
www.wcdgroup.com

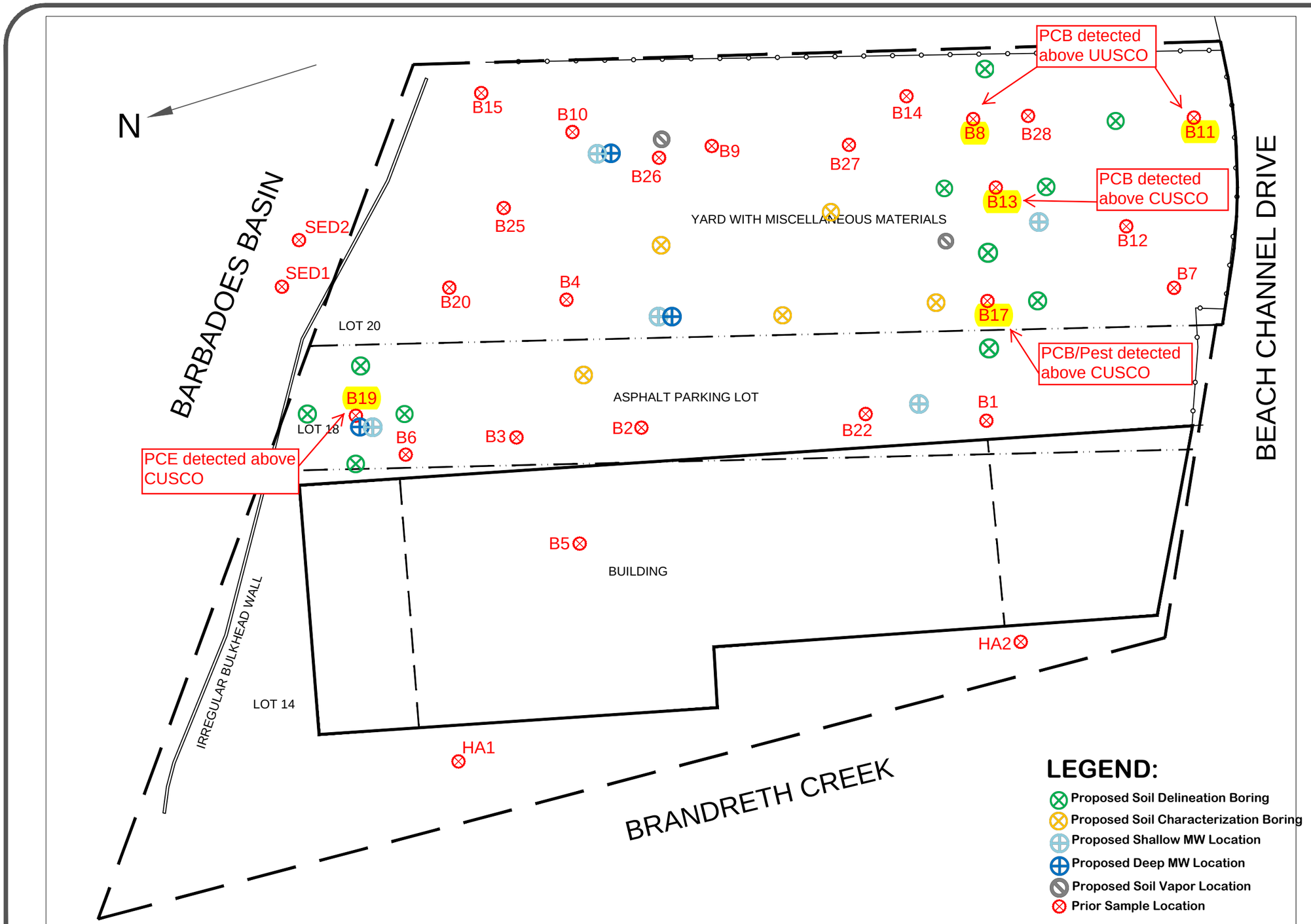
Site Location Map

3-60 Beach 79th Street
Far Rockaway, NY

Figure: 1

Date: 2/2/2018

Source:
USGS Far Rockaway Quadrangle, NY
(7.5 Minute Series, 2012)



WCD GROUP
For pivotal matters.
Environmental Construction Management
WCD Group LLC
1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: (212) 631-9000
Fax: (212) 631-8066
www.wcdgroup.com

CLIENT:

79 Averne Development LLC

No.	Revision/Issue	Date
2	RI Sample Locs	2/1
1	Add Sampling Locations	11/8

PROJECT NAME AND ADDRESS

3-60 Beach 79th Street
Far Rockaway,
Borough of Queens,
New York, NY

DRAWING TITLE

Proposed Remedial Investigation Site Plan

DRAWN BY: B. Zamorski

REVIEWED BY: H. Gold

Project	Drawing Name
17-9838	
Date: 6/21/17	
Scale: AS SHOWN	Sheet No. Fig 2

Appendix B

3-60 BEACH 79TH STREET

FAR ROCKAWAY, NEW YORK

Site Investigation Report

Prepared for:

79 Arverne Development LLC

220-46 73rd Avenue

Bayside, New York

Prepared by:

WCD Group, LLC

1350 Broadway, Suite 1904

New York, New York 10018

212.631.9000

January 2018

SITE INVESTIGATION REPORT

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FIGURES

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APPENDICES

LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
CAMP	Community Air Monitoring Plan
COC	Contaminant of Concern
CPP	Citizen Participation Plan
CSM	Conceptual Site Model
DER-10	New York State Department of Environmental Conservation Technical Guide 10
FID	Flame Ionization Detector
GPS	Global Positioning System
HASP	Health and Safety Plan
HAZWOPER	Hazardous Waste Operations and Emergency Response
IRM	Interim Remedial Measure
NAPL	Non-aqueous Phase Liquid
NYC VCP	New York City Voluntary Cleanup Program
NYC DOHMH	New York City Department of Health and Mental Hygiene
NYC OER	New York City Office of Environmental Remediation
NYS DOH ELAP	New York State Department of Health Environmental Laboratory Accreditation Program
OSHA	Occupational Safety and Health Administration
PID	Photoionization Detector
QEP	Qualified Environmental Professional
RI	Remedial Investigation
RIR	Remedial Investigation Report
SCO	Soil Cleanup Objective
SIR	Subsurface Investigation Report
SPEED	Searchable Property Environmental Electronic Database

EXECUTIVE SUMMARY

This Subsurface Investigation Report (SIR) describes the results of site investigations conducted at 3-60 Beach 79th Street in the Far Rockaway neighborhood of Queens, New York. This report has been prepared by WCD Group, LLC (WCD) on behalf of the owner of the property, 79 Arverne Development LLC, in support of an application for the New York State Brownfield Cleanup Program (BCP). Although the property encompasses Lots 14, 18 and 20 of Block 16100 on the New York City Tax Map, only Lots 18 and 20 are the subject of the BCP application.

Site Location and Current Use

The Site is located at 3-60 Beach 79th Street in the Far Rockaway neighborhood of Queens, New York (Figure 1) and occupies two adjacent lots (Lots 18 and 20) of Block 16100 on the New York City Tax Map (Figure 3). The Site has an area of approximately 51,050 square feet (sf), and is part of a larger 100,125 sf property bounded by Barbadoes Basin to the north, Beach Channel Drive to the south, a paved parking lot to the east, and Brandreth Creek to the west. Figure 2 shows the extent of the property and surrounding land use. The property line and limits of each lot are shown on Figure 3. The Site (Lots 18 and 20) is occupied by an asphalt parking lot and grass yard used for storage of miscellaneous equipment and material. A small portion of Lot 18 lies beneath the southeastern edge of an industrial/commercial building that covers most of Lot 14.

The building on Lot 14 is a two-story slab-on-grade structure currently occupied by a machine shop and a janitorial supply distributor. As noted above, Lot 14 is not part of the Site BCP application.

Summary of Proposed Redevelopment Plan

The proposed future use of the Site will consist of a commercial use including the development of a state-of-the-art self-storage facility on Lot 20, east of the existing building. No significant changes to the existing building are anticipated. The current zoning designation is M1-1, for manufacturing use, which typically includes light industrial uses such as woodworking shops, repair shops, and wholesale service and storage facilities. The proposed use appears to be consistent with existing zoning for the property.

Summary of Past Uses of Site and Areas of Concern

The following Site history was developed, based on review of the Phase I Environmental Site Assessment (ESA) completed by EnviroTrac Ltd. in April of 2016, and information contained in the SPEED database maintained by the Mayor's Office of Environmental Remediation (OER). The property was historically used for industrial purposes since at least 1894. The available historical information suggests that Lot 18 has remained undeveloped, and for a time was a mapped street. Historical operations conducted on Lot 20 included an ice factory, a bicycle manufacturer and a permitted construction and demolition (C&D) debris transfer station. Lot 14 was developed with miscellaneous structures from approximately 1901 through 1956, when the current Site building was constructed. Operations conducted on Lot 14 prior to the construction of the extant building included coal storage and beer distribution.

Areas of Concern (AOC) identified for this site include:

1. Urban fill of unknown volume and origin; and
2. Potential soil and groundwater contamination from historic and current industrial and manufacturing activity, historic use of the site as a transfer station for C&D debris, and potential off-site sources based on historic/current industrial and manufacturing activity (e.g., presence of historic incinerator on the property to the west of Brandreth Creek).

Summary of the Work Performed During the Site Investigation

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 28 soil borings across the entire property, and collected 27 soil samples (Figure 4) for chemical analysis from the soil borings to evaluate soil quality;
3. Installed twelve temporary, groundwater monitoring wells (Figure 4) throughout the Site to establish groundwater flow and collected twelve groundwater samples for chemical analysis to evaluate groundwater quality; and
4. Collected two sediment samples from the shore of the adjacent basin to evaluate sediment quality.

Summary of Environmental Findings

1. Elevation of the property ranges from sea level to approximately 9.6 feet above mean sea level (amsl).

2. Depth to groundwater ranges from approximately 4 to 8 feet below ground surface (bgs) at the Site.

3. Groundwater flow is expected to occur from south to north towards Barbadoes Basin. However, tidal influence of groundwater elevation was observed during sampling. Groundwater at the Site is presumed to be tidally influenced by Brandreth Creek to the west and Barbadoes Basin to the north.

4. Bedrock was not encountered during completion of the site investigation. Based on readily available information, depth to bedrock in the site vicinity is expected to exceed 500 feet.

5. The stratigraphy of the site, from the surface down, consists of approximately 3 to 9 feet of urban fill material underlain by 12 to 18 inches of olive-green clay above fine to medium sand.

6. Soil/fill samples collected during the site investigation were compared to New York State Department of Environmental Conservation (NYSDEC) 6NYCRR Part 375 Section 6.8 Unrestricted Use Soil Cleanup Objectives (SCOs) and Restricted Commercial Use SCOs. Several volatile organic compounds (VOCs) were detected above Unrestricted Use SCOs in one or more soil samples collected. Tetrachloroethylene (PCE) was detected in soil sample B19 at a concentration of 160,000 µg/L, in exceedance of its Commercial Use SCO. Several semi-volatile organic compounds (SVOCs), mainly PAHs including benzo(a)anthracene (max. 12 mg/kg), benzo(a)pyrene (max. 13 mg/kg), benzo(b)fluoranthene (max. 14 mg/kg), dibenzo(a,h)anthracene (max. 3 mg/kg) and ideno(1,2,3-cd)pyrene (max. 9.1 mg/kg), were detected in exceedance of Commercial Use SCOs in one or more samples collected. Six metals, including arsenic (max. 200 mg/kg), barium (max. 2,160 mg/kg), cadmium (max. 13 mg/kg), copper (340 mg/kg), lead (max. 2,400 mg/kg) and nickel (max. 370 mg/kg), were detected in exceedance of Commercial Use SCOs in one or more samples collected. Total polychlorinated biphenyls

(PCBs) (i.e., total Aroclor) was detected in soil samples B13 (2.8 mg/kg) and B17 (2.3 mg/kg) at concentrations exceeding its corresponding Commercial Use SCO.

7. Two sediment samples (SED-1 and SED-2) were collected for laboratory analysis during the completion of the site investigation. No VOCs, PCBs or Pesticides were detected in sediment samples collected at the Site. One PAH, benzo(a)pyrene (2.29 mg/kg), was detected in sample SED-1 in exceedance of its corresponding Commercial Use SCO of 1 mg/kg. One metal, Barium (max. 2,100 mg/kg), was detected in exceedance of its corresponding Commercial Use SCO of 400 mg/kg in both sediment samples collected.

8. Positive PID readings were detected in the headspace of one or more monitoring wells, with readings ranging from 0.0 ppm (B1, B11, B17 and B28) to 4.90 ppm (B26). Sulfurous odors were noted in groundwater recovered from monitoring wells B3, B21, B22 and B23. Petroleum odors and sheen were noted in purged water from monitoring wells B26 and B27. Slight sheen was also noted in purged water from monitoring well B28, however no odors were observed.

9. Groundwater samples collected during the site investigation were compared to New York State 6NYCRR Part 703.5 Class GA groundwater standards (AWQS). Six VOCs, including cis-DCE (max. 2,300 µg/L), naphthalene (max. 14 µg/L), p-isopropyltoluene (7.4 µg/L), PCE (max. 32 µg/L), TCE (max. 90 µg/L) and vinyl chloride (max. 1,800 µg/L), were detected in exceedance of AWQS in one or more groundwater samples collected. Three PAHs, including benzo(a)anthracene (max. 3.2 µg/L), benzo(b)fluoranthene (max. 3.3 µg/L) and chrysene (max. 3.2 µg/L), were detected above AWQS in groundwater samples B1 and B11. Three metals, including arsenic (max. 1,100 µg/L), manganese (max. 600 µg/L) and selenium (max. 115 µg/L), were detected in exceedance of AWQS in one or more samples collected. No PCBs or pesticides were detected in any of the groundwater samples collected at the Site.

1.0 INTRODUCTION

1.1 Overview

This Subsurface Investigation Report (SIR) describes the results of site investigations conducted at 3-60 Beach 79th Street in the Far Rockaway neighborhood of Queens, New York. This report has been prepared on behalf of the owner of the property, 79 Arverne Development LLC, in support of an application for the New York State Brownfield Cleanup Program (BCP). Although the property encompasses Lots 14, 18 and 20 of Block 16100 on the New York City Tax Map, only Lots 18 and 20 are the subject of the BCP application.

The site investigation was performed between June 8 and November 6, 2017. This SIR summarizes the nature and extent of contamination identified on site, and will be used to develop a Remedial Investigation Work Plan (RIWP) consistent with the requirements of the BCP.

1.2 Site Location and Current Use

The Site is located at 3-60 Beach 79th Street in the Far Rockaway neighborhood of Queens, New York (Figure 1) and occupies two adjacent lots (Lots 18 and 20) of Block 16100 on the New York City Tax Map (Figure 3). The Site has an area of approximately 51,050 square feet (sf), and is part of a larger 100,125 sf property bounded by Barbadoes Basin to the north, Beach Channel Drive to the south, a paved parking lot to the east, and Brandreth Creek to the west. Figure 2 shows the extent of the property and surrounding land use and the property line and limits of each lot are shown on Figure 3.

The Site (Lots 18 and 20) is occupied by an asphalt parking lot and grass yard used for storage of miscellaneous equipment and material. A small portion of Lot 18 lies beneath the southeastern edge of an industrial/commercial building that covers most of Lot 14.

The building on Lot 14 is a two-story slab-on-grade structure currently occupied by a machine shop and a janitorial supply distributor. As noted elsewhere in this document, Lot 14 is not part of the BCP application.

1.3 Proposed Redevelopment Plan

The proposed future use of the Site will consist of commercial use including the development of a state-of-the-art self-storage facility on Lot 20, east of the existing building (to remain). The current zoning designation is M1-1, which typically includes light industrial uses such as woodworking shops, repair shops and wholesale service and storage facilities. The proposed use appears to be consistent with existing zoning for the property.

1.4 Description of Surrounding Property

The property is located in an urban area comprised of residential, commercial and industrial/manufacturing properties. A description of the adjoining and nearby properties is provided in Table 1 below, Figure 2 shows surrounding land use.

Table 1: Surrounding Land Usage

Direction in Relation to Subject Property	Adjacent Property Use(s)	Vicinity Use(s)
North	Barbadoes Basin (waterbody)	Vernam Barbadoes Peninsula (wildlife preserve)
East	Parking facility/Bus depot	• Industrial/Manufacturing • Residential
South	Vacant land	• Institution (P.S. 183) • Residential
West	Brandreth Creek (waterbody)	• Industrial/Manufacturing • Vacant land

2.0 SITE HISTORY

2.1 Past Use

The following Site history was developed, based on review of the Phase I Environmental Site Assessment (ESA) completed by EnviroTrac Ltd. in April of 2016, and information contained in the SPEED database maintained by the Mayor's Office of Environmental Remediation (OER). The property was historically used for industrial purposes since at least 1894. The available historical information suggests that Lot 18 has remained undeveloped, and for a time was a mapped street. Historical operations conducted on Lot 20 included an ice factory, a bicycle manufacturer and a permitted construction and demolition (C&D) debris transfer station. Lot 14 was developed with miscellaneous structures from approximately 1901 through 1956, when the current Site building was constructed. Operations conducted on Lot 14 prior to the construction of the extant building included coal storage and beer distribution.

2.2 Previous Investigations

Presented below are brief summaries of the results of prior environmental reports.

"Phase I Environmental Site Assessment" prepared by EnviroTrac Ltd., dated April 6, 2016

The Phase I ESA Report prepared by EnviroTrac identified recognized environmental conditions (RECs) associated with the historical industrial uses of the property, the former gasoline tank located on the western portion of the Site, and the historical incinerator located on the western adjacent property. The property was also identified in New York State database records as an inactive Solid Waste Facility/Landfill used for construction and demolition debris processing.

"Limited Phase II Environmental Site Assessment" prepared by EnviroTrac Ltd., dated July 28, 2016

EnviroTrac's Phase II ESA consisted of the completion of a geophysical investigation utilizing ground-penetrating radar (GPR) and magnetometer, installation of nine soil borings across the subject property to a maximum depth of 10-feet bgs, and test-pit excavation in the area of the suspected UST (Unit 4).

The geophysical survey identified anomalies potentially consistent with the presence of a UST in Unit 4 of the on-site building. A test-pit was advanced to further investigate the anomalies. No UST was identified.

PID readings were reported by EnviroTrac in certain soil borings. However, no visual or olfactory indications of contamination were observed. PID readings were reportedly associated with the bog material present within the saturated zone at the Site.

Four soil samples were collected from the sidewalls of the test-pit excavation and analyzed for VOCs and SVOCs. Laboratory results for the soil samples indicated that no VOCs were detected in soils collected from excavation sidewalls. Several SVOCs were detected above regulatory criteria in all sidewall samples collected, including benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluorathene, chrysene and ideno(1,2,3-cd)pyrene. The elevated concentrations of SVOCs were reportedly attributed to urban fill material identified beneath the subject property.

EnviroTrac did not recommended further action in their Phase II ESA report.

2.3 Site Inspection

A site inspection was performed by WCD prior to conducting the site investigation. The inspection was conducted by Claire Siegrist, under the direction of the Qualified Environmental Professional (QEP). The reconnaissance included a visual inspection of the Site and selection of soil and groundwater sample locations. Activities performed during the site investigation were completed according to prior findings.

2.4 Areas of Concern

The AOC identified by WCD for this site include:

1. Urban fill of unknown origin and volume; and
2. Potential soil and groundwater contamination from historic and current industrial and manufacturing activity, historic use of the site as a transfer station for C&D debris, and potential off-site sources based on historic/current industrial and manufacturing activity (e.g., presence of a historic incinerator on the property to the west of Brandreth Creek).

Copies of previous environmental reports are presented in Appendix A. Full continuous PDF versions (including all attachments) are provided via electronic submission.

3.0 SITE INVESTIGATION ACTIVITIES

The following scope of work was conducted by WCD on behalf of 79 Arverne Development LLC:

1. Conducted a Site inspection to identify AOCs and physical obstructions (i.e. structures, buildings, etc.);
2. Installed 27 soil borings across the entire property (24 on the Site and 3 on Lot 14), and collected 27 soil samples for chemical analysis from the soil borings to evaluate soil quality;
3. Installed twelve temporary groundwater monitoring wells throughout the Site to establish groundwater flow and collected twelve groundwater samples for chemical analysis to evaluate groundwater quality; and
4. Collected two sediment samples from the shore of the adjacent basin to evaluate soil quality.

3.1 Borings and Monitoring Wells

Drilling and Soil Logging

Two manual (HA-1 and HA-2) and twenty-five mechanized soil borings were advanced across the property between June 8, 2017 and November 6, 2017 to evaluate surface and subsurface soil quality. Each mechanized boring was screened from ground surface to termination depth utilizing a properly calibrated MiniRAE 3000 or Multi-RAE PGM-6228 multi-gas detector capable of screening soils for volatile organic vapors, H_2S and explosive gases (e.g., methane).

An assessment of subsurface soil characteristics, including soil type, the presence of foreign materials, field indications of contamination (e.g., staining and odors), and instrument indications of contamination (i.e., multi-gas readings) were made by WCD personnel during the installation of each soil boring. WCD personnel maintained field logs documenting physical characteristics, PID and multi-gas readings, and field indications of contamination for all

encountered material at each boring location. Slightly elevated soil-gas readings were detected above background concentrations at varying intervals across the Site.

June 8 and 9 Sampling Events

Aquifer Drilling and Testing (ADT) personnel advanced ten soil borings (B1 through B10) to a maximum depth of 15-feet bgs utilizing a Geoprobe 6610DT direct-push drill rig equipped with disposable acetate sleeves. ADT also advanced two borings (HA-1 and HA-2) to a maximum depth of two-feet bgs to the west of the building utilizing a hand-held auger. One or more samples were collected from each boring location.

Borings HA-1, HA-2 and B-5 are located on Lot 14. The balance of the soil borings are located on the Site. Information obtained from these borings is included in this report to provide a broader evaluation of overall conditions on and adjacent to the Site.

July 5 Sampling Event

Core Down Drilling (CDD) personnel advanced ten soil borings (B11 through B20) to a maximum depth of 12-feet bgs utilizing a Geoprobe 54DT direct-push drill rig equipped with disposable acetate sleeves. One soil sample was collected from each boring location, with the exception of B16 and B18 where shallow refusal was encountered at approximately 3-feet bgs.

November 6 Sampling Event

ADT personnel advanced eight soil borings (B21 through B28) to a maximum depth of 20-feet bgs utilizing a Geoprobe 6619DT direct-push drill rig equipped with disposable acetate sleeves. Discrete soil samples were collected from five boring locations B22, B25, B26, B27 and B28.

Boring logs are attached in Appendix B. A map showing the location of soil borings is shown in Figure 4.

Groundwater Monitoring Well Construction

Twelve soil borings were converted to temporary monitoring wells to evaluate groundwater quality beneath the Site. Temporary monitoring wells B1 and B3 were installed by ADT on June 8, 2017, temporary monitoring wells B11 and B17 were installed by CDD on July 5, 2017 and temporary monitoring wells B21 through B28 were installed by ADT on November 6, 2017. Each

well was constructed of one or two-inch PVC casing and 0.01-inch slotted PVC well screen. Temporary monitor well locations are shown in Figure 4.

Survey

Each well location at the site was determined relative to fixed benchmarks and building features. The approximate elevation of each well casing was determined by overlaying well locations onto an existing topographic survey completed for the Site in July 2017, for use in determining relative groundwater elevations.

Water Level Measurement

Depth to groundwater was estimated based on soil boring sample observations. Groundwater flow is expected to occur from south to north towards the Barbadoes Basin. However, during the sampling event, groundwater beneath the Site was observed to be influenced by tidal fluctuations. Groundwater elevations may not be practical in determining groundwater flow beneath the Site. Estimated depth to groundwater observed during temporary monitoring well installations are presented in Table 2, below:

Table 2: Water Level Measurements

Well ID	Sampling Date	Headspace Reading (ppm)	Approx. Depth to Groundwater (feet bgs)
B1	6/8/2017	0.0	6
B3	6/8/2017	45.0 H2S	8
B11	7/5/2017	0.0	8
B17	7/5/2017	0.0	5
B21	11/6/2017	0.13	4
B22	11/6/2017	0.095	5
B23	11/6/2017	0.56	4
B24	11/6/2017	2.60	4
B25	11/6/2017	0.48	6.5
B26	11/6/2017	4.90	6
B27	11/6/2017	3.68	7
B28	11/6/2017	0.0	6.5

Note: the subject property is bordered to the north and west by surface water bodies, Barbadoes Basin and Brandreth Creek, respectively.

3.2 Sample Collection and Chemical Analysis

Sampling performed as part of the site investigation was based on in professional judgment that considered area history, discolored soil, stressed vegetation, drainage patterns, field instrument measurements, odor, or other field indicators. Media including soil, sediment and groundwater were sampled and evaluated in the SIR. Discrete (grab) samples were collected to delineate the nature and extent of contamination and to assess the impact of contaminants on public health and the environment. The sampling performed and presented in this SIR provide basis for evaluation of remedial action alternatives, establishment of a qualitative human health exposure assessment, and selection of a final remedy. All samples were collected in accordance with NYSDEC sample collection and decontamination protocols.

Soil Sampling

Twenty-seven soil samples were collected for chemical analysis during this site investigation. Data on soil sample collection for chemical analyses, including dates of collection and sample depths, is reported in Tables 4A through 4D. Figure 4 shows the location of samples collected in this investigation. Laboratories and analytical methods are shown below.

Field personnel wore dedicated, disposable gloves, and all samples were collected directly from the acetate sleeves and placed into laboratory-supplied containers. Soil samples submitted for VOC analysis were collected using laboratory-supplied volatile organic analysis (VOA) kits and dedicated disposable soil syringes.

Soil samples were placed in a chilled cooler immediately following sample collection. Samples were transported via courier to a New York State ELAP certified laboratory for chemical analysis. Appropriate chain-of-custody procedures were followed.

Sediment Sampling

Two sediment grab samples were collected for chemical analysis during this site investigation. Data on sediment sample collection for chemical analysis, including dates of collection and sample depths, is reported in Tables 5A through 5D. Figure 4 shows the location of samples collected in this investigation. Laboratories and analytical methods are shown below.

Field personnel wore dedicated, disposable gloves, and all samples were placed directly into laboratory-supplied containers. Sediment samples submitted for VOC analysis were collected

using laboratory-supplied volatile organic analysis (VOA) kits and dedicated disposable soil syringes. Samples were placed in a chilled cooler immediately following sample collection and were transported via courier to a New York State ELAP certified laboratory for chemical analysis. Appropriate chain-of-custody procedures were followed.

Groundwater Sampling

Twelve groundwater samples were collected for chemical analysis during this site investigation. Groundwater sample collection data is reported in Tables 6A through 6D. Sampling logs with information on purging and sampling of groundwater monitor wells is included in Appendix C. Figure 3 displays groundwater sampling locations. Laboratories and analytical methods are shown below.

Prior to sampling, groundwater was purged using a peristaltic pump and dedicated Teflon tubing until visibly free of turbidity prior to sample collection. Positive PID readings were detected in one or more monitoring wells, with readings ranging from 0.0 ppm (B1, B11, B17 and B28) to 4.90 ppm (B26). Sulfurous odors were noted in groundwater recovered from monitoring wells B3, B21, B22 and B23. Petroleum odors and sheen were noted in purge water from monitoring wells B26 and B27. Slight sheen was also noted in purge water from monitoring well B28, however no odors were observed.

Field personnel wore dedicated, disposable gloves, and all samples were collected into laboratory-supplied containers. No groundwater samples were filtered prior to submission to the laboratory. Groundwater samples were placed in a chilled cooler immediately following sample collection. Samples were transported via courier to a New York State ELAP certified laboratory for chemical analysis. Appropriate chain-of-custody procedures were followed.

Chemical Analysis

Chemical analytical work presented in this SIR has been performed in the following manner:

Table 3: Summary of Chemical Analyses

Factor	Description
Chemical Analytical	Chemical analytical laboratory(s) used in the site investigation are

Factor	Description
Laboratory	NYS ELAP certified and are listed below. • York Analytical Laboratory (NYS ELAP No. 10854); • Hampton Clarke (NYS ELAP No. 11408); • Alpha Analytical (NYS ELAP No. 11148).
Chemical Analytical Methods	Soil analytical methods (6/8, 6/9 and 7/5/2017): • TAL Metals by EPA Method 6010C; • VOCs by EPA Method 8260C; • SVOCs by EPA Method 8270D; • Pesticides by EPA Method 8081B; • PCBs by EPA Method 8082A; Soil analytical methods (11/6/2017): • VOCs by EPA Method 8260C; Sediment analytical methods (6/9/2017): • TAL Metals by EPA Method 6010C; • VOCs by EPA Method 8260C; • SVOCs by EPA Method 8270D; • Pesticides by EPA Method 8081B; • PCBs by EPA Method 8082A; Groundwater analytical methods (6/8 and 7/5/2017): • TAL Metals by EPA Method 6010C; • VOCs by EPA Method 8260C;

Factor	Description
	• SVOCs by EPA Method 8270D; • Pesticides by EPA Method 8081B; • PCBs by EPA Method 8082A; Groundwater analytical methods (11/6/2017): • VOCs by EPA Method 8260C.

Results of Chemical Analyses

Laboratory data for soil, sediment and groundwater are summarized in Tables 4A through 4D, 5A through 5D and 6A through 6D, respectively. Laboratory data deliverables for all samples evaluated in this SIR are provided in digital form in Appendix D.

4.0 ENVIRONMENTAL EVALUATION

4.1 Geological and Hydrogeological Conditions

Stratigraphy

Borings were completed to depths ranging from 10 to 15 feet bgs during the site investigation. Subsurface soils recovered from soil borings generally consisted of historical fill material above native deposits. Fill material consisting of comingled coal, cinders, broken concrete, asphalt, and apparent bottom ash and slag was present from ground surface to depths ranging from approximately 3 to 9 feet bgs. Native material present below the fill generally consisted of a 12 to 18 inch layer of olive-green clay underlain by a fine to medium sand. Depth to bedrock is unknown, but reportedly exceeds 500 feet.

Field evidence of contamination (i.e. petroleum staining, odors and elevated PID readings) were observed at several boring locations throughout the site, including B6, B7, B8, B9, B10, B17, B20, B22, B25, B26 and B28. Sulfurous odors and elevated H_2S readings were observed at most boring locations, mainly between 7 and 12 feet bgs, where the native olive-green clay layer was present.

Hydrogeology

A table displaying approximate water level data for all temporary groundwater monitoring wells is included in Table 2, above. The average depth to groundwater is 5.3 feet bgs and the range in depth is 4 to 8 feet bgs. Shallow groundwater flow is expected to occur from south to north towards the Barbadoes Basin. However groundwater was observed to be influenced by tidal fluctuations during the sampling events.

4.2 Soil Chemistry

Twenty-seven soil samples were collected for laboratory analysis during the completion of the site investigation. Soil analytical results were compared to NYSDEC 6NYCRR Part 375, Section 6.8 Soil Cleanup Objectives (SCOs) for Commercial Use and Unrestricted Use.

Six VOCs, including 2-butanone (MEK), acetone, cis-1,2-dichloroethylene (cis-DCE), tetrachloroethylene (PCE), trans-1,2-dichloroethylene (trans-DCE) and trichloroethylene (TCE), were detected above Unrestricted Use SCOs in one or more samples collected. Additionally,

PCE was detected in sample B19 at a concentration of 160,000 µg/L, in exceedance of its corresponding Commercial Use SCO of 150,000 µg/L.

Five PAHs, including benzo(a)anthracene (max. 12 mg/kg), benzo(a)pyrene (max. 13 mg/kg), benzo(b)fluoranthene (max. 14 mg/kg), dibenzo(a,h)anthracene (max. 3 mg/kg) and ideno(1,2,3-cd)pyrene (max. 9.1 mg/kg), were detected in exceedance of Commercial Use SCOs in one or more samples collected. Additionally, two PAHs, including chrysene and benzo(k)fluoranthene, were detected in exceedance of Unrestricted Use SCOs in one or more samples collected.

Six metals, including arsenic (max. 200 mg/kg), barium (max. 2,160 mg/kg), cadmium (max. 13 mg/kg), copper (340 mg/kg), lead (max. 2,400 mg/kg) and nickel (max. 370 mg/kg), were detected in exceedance of Commercial Use SCOs in one or more samples collected. Additionally, three metals, including mercury, selenium and zinc, were detected in exceedance of Unrestricted Use SCOs in one or more samples collected.

PCBs, including Aroclor 1242 (max. 0.36 mg/kg), Aroclor 1248 (max. 0.239 mg/kg) and Aroclor 1260 (max. 2.4 mg/kg), were detected in one or more samples above Unrestricted Use SCOs. Total Aroclor was detected in soil samples B13 (2.8 mg/kg) and B17 (2.3 mg/kg) at concentrations exceeding its corresponding Commercial Use SCO. Two pesticides, including Aldrin (3.1 mg/kg) and Dieldrin (2.5 mg/kg), were detected above Commercial Use SCOs in sample B17.

The presence of chlorinated VOCs (i.e., PCE and TCE) and their degradation products (i.e., cis-DCE, trans-DCE, vinyl chloride) indicate a release presumably in the vicinity of soil sample B19 due to the relatively high concentration in soil in that area. The detection of PCBs and pesticides concentrated in soil borings on the southeastern portion of the Site is indicative of a possible release in the vicinity of soil borings B17 and B13. The presence of PAHs and metals in soils is consistent with that of low-quality urban fill. A summary table of data for chemical analyses performed on soil samples is included in Tables 4A through 4D. Figure 5 shows the location and post the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Track 2 Soil Cleanup Objectives.

4.3 Sediment Chemistry

Two sediment samples (SED-1 and SED-2) were collected for laboratory analysis during the completion of the site investigation. No VOCs, PCBs or Pesticides were detected in sediment samples collected at the Site.

One PAH, benzo(a)pyrene (2.29 mg/kg), was detected in sample SED-1 in exceedance of its corresponding Commercial Use SCO of 1 mg/kg. Additionally, benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene and chrysene, were detected above Unrestricted Use SCOs in sample SED-1. One metal, Barium (max. 2,100 mg/kg), was detected in exceedance of its corresponding Commercial Use SCO of 400 mg/kg in both sediment samples collected. Additionally, six metals, including arsenic, copper, lead, mercury, selenium and zinc, were detected above Unrestricted Use SCOs in one or both samples collected.

Sediment sample laboratory analytical results are consistent with the presence of poor quality urban fill located across the Site. A summary table of data for chemical analyses performed on soil samples is included in Tables 5A through 5D. Figure 6 shows the location and posts the values for soil/fill that exceed the 6NYCRR Part 375-6.8 Track 2 Soil Cleanup Objectives.

4.4 Groundwater Chemistry

Twelve groundwater samples were collected and analyzed for laboratory analysis during the completion of the site investigation. Laboratory results were compared to New York State 6NYCRR Part 703.5 Class GA groundwater standards (AWQS).

Six VOCs, including cis-DCE (max. 2,300 µg/L), naphthalene (max. 14 µg/L), p-isopropyltoluene (7.4 µg/L), PCE (max. 32 µg/L), TCE (max. 90 µg/L) and vinyl chloride (max. 1,800 µg/L), were detected in exceedance of AWQS in one or more groundwater samples collected.

Four groundwater samples collected on June 8 and July 5, 2017 were additionally analyzed for SVOCs, metals, PCBs and pesticides. No PCBs or pesticides were detected in any of the groundwater samples collected at the Site. Three PAHs, including benzo(a)anthracene (max. 3.2 µg/L), benzo(b)fluoranthene (max. 3.3 µg/L) and chrysene (max. 3.2 µg/L), were detected above AWQS in groundwater samples B1 and B11. Three metals, including arsenic (max. 1,100 µg/L), manganese (max. 600 µg/L) and selenium (max. 115 µg/L), were detected in exceedance of AWQS in one or more samples collected.

The source of chlorinated VOCs was not able to be determined during the site investigation. However the presence of chlorinated VOCs and relatively higher concentrations of their degradation products in groundwater beneath the Site indicates natural attenuation is occurring. The presence of SVOCs and metals detected in groundwater is consistent with the presence of urban fill across the site. A summary table of data for chemical analyses performed on groundwater samples is included in Tables 6A through 6D. Exceedances of applicable groundwater standards are shown. Figure 7 shows the location and posts the values for groundwater that exceed the New York State 6NYCRR Part 703.5 Class GA groundwater standards.

4.5 Prior Activity

Based on an evaluation of the data and information from the site investigation, disposal of significant amounts of hazardous waste is not expected at this site.

4.6 Impediments to Remedial Action

There are no known impediments to remedial action at this property.

5.0 DATA GAPS

The following data gaps have been identified and will be addressed in the Remedial Investigation Work Plan (RIWP) pursuant to the completion and submission of the Remedial Investigation Report (RIR) as per the requirements of the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP).

- Soil characterization in previously inaccessible areas onsite (east-central region of Lot 18 and west-central region of Lot 20);
- Vertical and horizontal extents of PCB and pesticide impacts in soils on the south/southeastern portion of the Site;
- Vertical and horizontal extents of relatively high CVOC-impacted soil in the vicinity of soil boring B19;
- Source and/or extents of CVOC impacts in shallow groundwater across the Site;
- Vertical extent of relatively high CVOC-impacted groundwater in the vicinity of temporary monitoring well B26; and
- Potential soil vapor pathway beneath the proposed building development on Lot 20.

FIGURES

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1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: 212.631.9000
Fax: 212.631.8066
www.wcdgroup.com

Client:

79 Averne Development LLC

Project Location:

3-60 Beach 79th Street
Far Rockaway, New York

Photo Description:

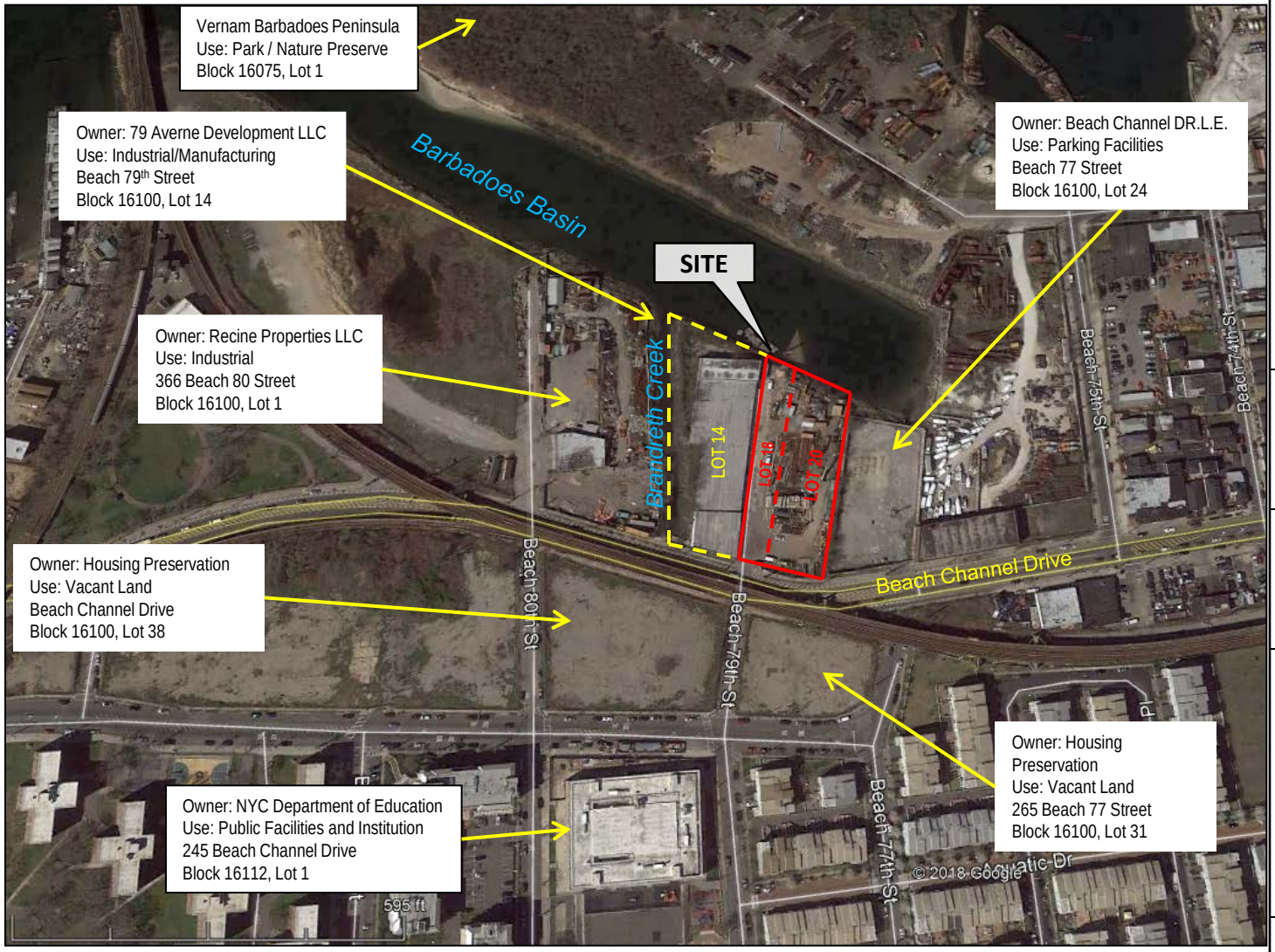
SITE BOUNDARY MAP

Date: 1/31/2018

Project No.: 17-9838CM

Source: Google Earth

Figure 1



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WCD Group, LLC
1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: 212.631.9000
Fax: 212.631.8066
www.wcdgroup.com

Client:
79 Averne Development LLC

Project Location:
3-60 Beach 79th Street
Far Rockaway, New York

Photo Description:

SURROUNDING LAND USAGE

Date: 1/31/2018

Project No.: 17-9838CM

Source: Google Earth

Figure 2

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WCD Group, LLC
1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: 212.631.9000
Fax: 212.631.8066
www.wcdgroup.com

Client:

79 Averne Development LLC

Project Location:

3-60 Beach 79th Street
Far Rockaway, New York
Queens (Borough 4)
Block 16100, Lots 18 and 20

Photo Description:

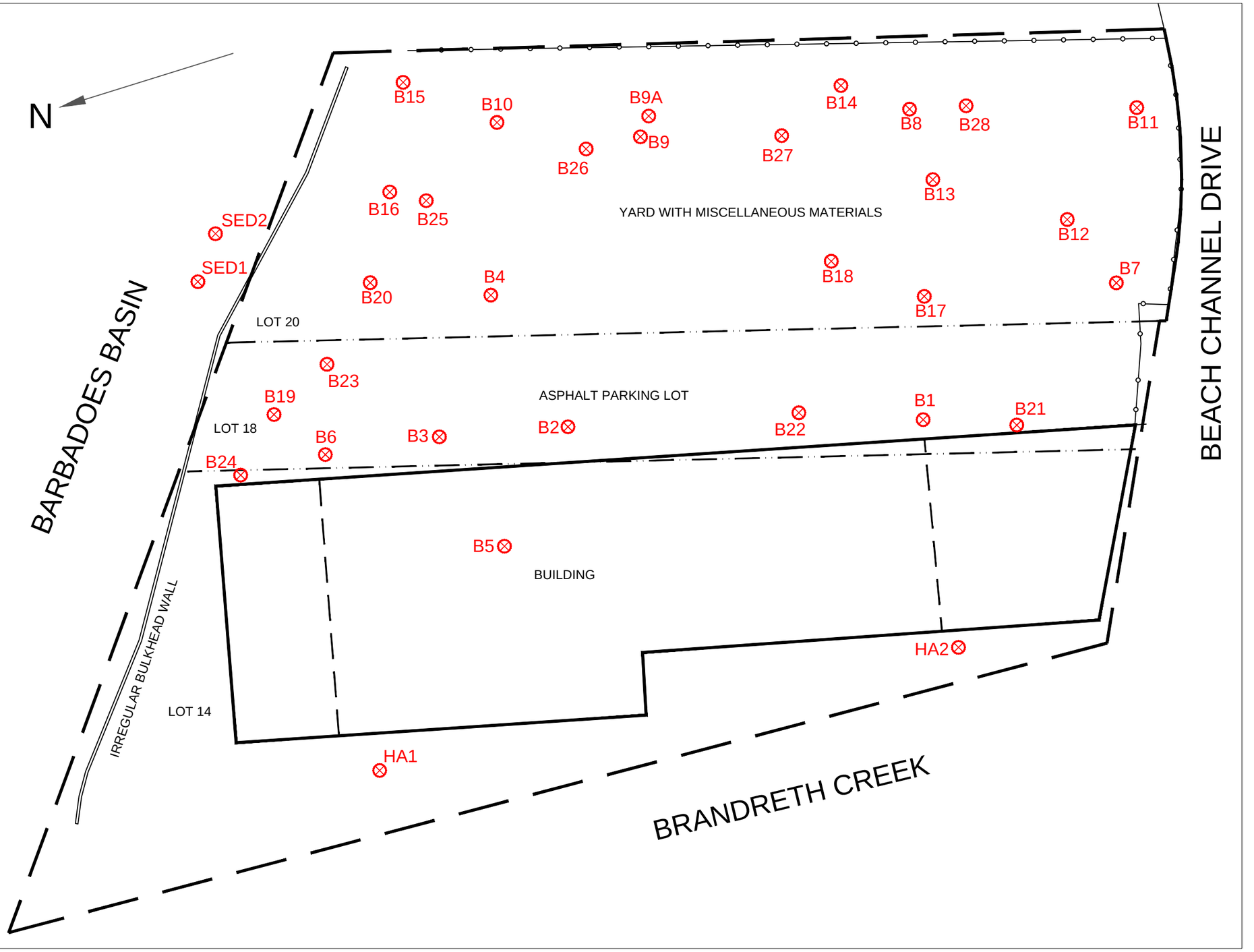
New York City Tax Map

Date: 1/31/2018

Project No.: 17-9838CM

Source: NYC Tax Map 2018

Figure 3



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Environmental Construction Management

WCD Group LLC
1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: (212) 631-9000
Fax: (212) 631-8066
www.wcdgroup.com

CLIENT:

79 Averne Development LLC

No.	Revision/Issue	Date
1	Add Sampling Locations	11/8

PROJECT NAME AND ADDRESS

3-60 Beach 79th Street
Far Rockaway,
Borough of Queens,
New York, NY

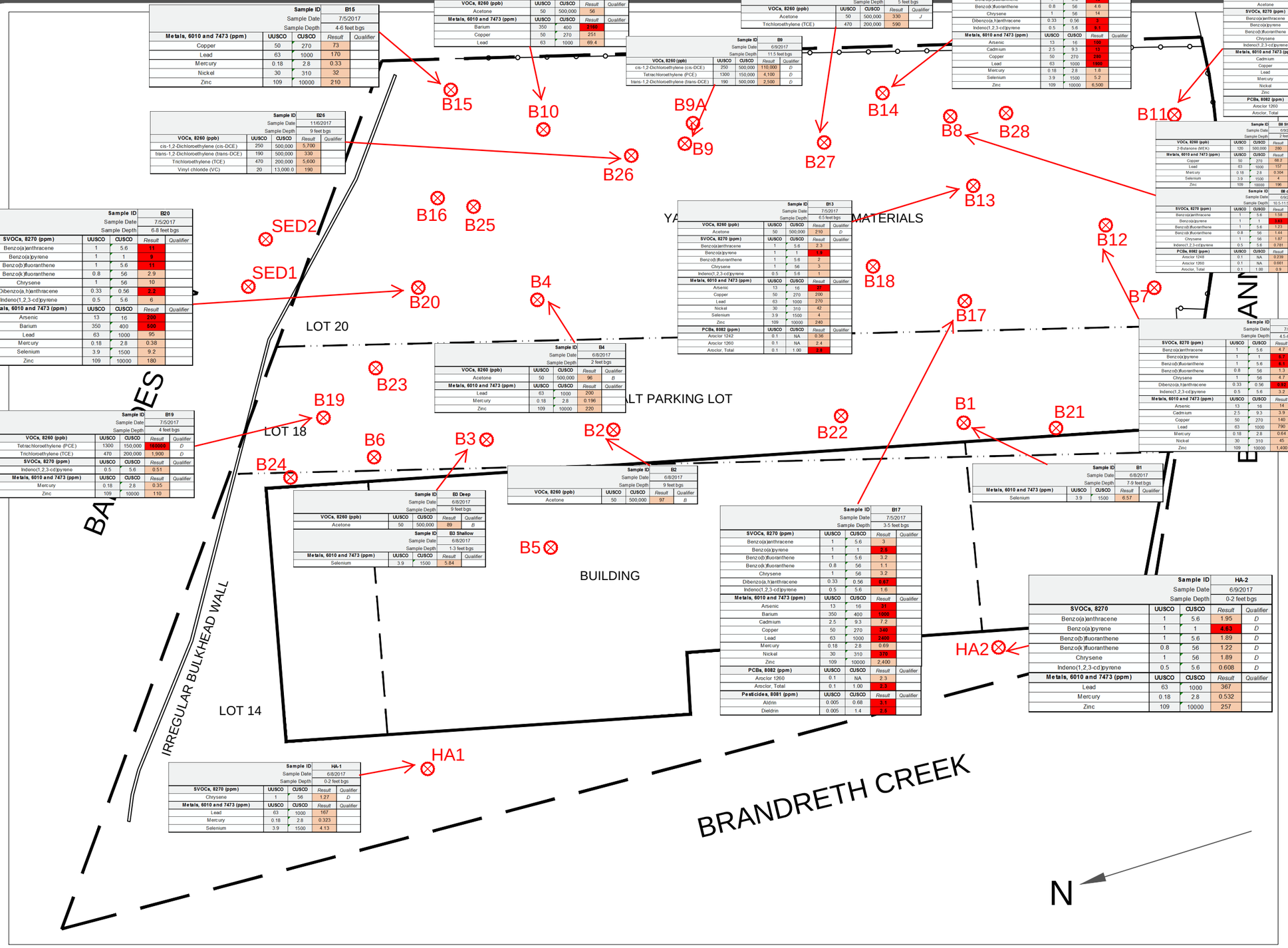
DRAWING TITLE

REMEDIAL INVESTIGATION SAMPLING LOCATIONS

DRAWN BY: B. Zamorski

REVIEWED BY: H. Gold

Project	Drawing Name
17-9838	
Date: 6/21/17	rev 11/8/17
Scale: AS SHOWN	Sheet No. Fig 4



	Sample ID	B15
	Sample Date	7/5/2017
	Sample Depth	4-6 feet bgs
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Copper	50	270	73	
Lead	63	1000	170	
Mercury	0.18	2.8	0.33	
Nickel	30	310	32	
Zinc	109	10000	210	

	Sample ID	B10
	Sample Date	6/9/2017
	Sample Depth	8 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
Acetone	50	500,000	56	
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Barium	350	400	2180	
Copper	50	270	251	
Lead	63	1000	69.4	

	Sample ID	B9
	Sample Date	6/9/2017
	Sample Depth	11.5 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
cis-1,2-Dichloroethylene (cis-DCE)	250	500,000	110,000	D
Tetrachloroethylene (PCE)	1300	150,000	4,100	D
trans-1,2-Dichloroethylene (trans-DCE)	190	500,000	2,500	D

	Sample ID	B27
	Sample Date	11/6/2017
	Sample Depth	5 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
Acetone	50	500,000	330	J
Trichloroethylene (TCE)	470	200,000	590	

	Sample ID	B14
	Sample Date	7/5/2017
	Sample Depth	10-12 feet bgs
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Benzo(a)anthracene	1	5.6	12	
Benzo(a)pyrene	1	1	13	
Benzo(b)fluoranthene	1	5.6	14	
Benzo(k)fluoranthene	0.8	56	4.6	
Chrysene	1	56	14	
Dibenzo(a,h)anthracene	0.33	0.56	3	
Indeno(1,2,3-cd)pyrene	0.5	5.6	9.1	
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Arsenic	13	16	100	
Cadmium	2.5	9.3	13	
Copper	50	270	280	
Lead	63	1000	1900	
Mercury	0.18	2.8	1.8	
Selenium	3.9	1500	5.2	
Zinc	109	10000	6,500	

	Sample ID	B11
	Sample Date	7/5/2017
	Sample Depth	3 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
Acetone	50	500,000	110	D
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Benzo(a)anthracene	1	5.6	2	
Benzo(a)pyrene	1	1	1.9	
Benzo(b)fluoranthene	1	5.6	2.4	
Chrysene	1	56	2.5	
Indeno(1,2,3-cd)pyrene	0.5	5.6	1.1	
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Cadmium	2.5	9.3	2.8	
Copper	50	270	240	
Lead	63	1000	630	
Mercury	0.18	2.8	1	
Nickel	30	310	94	
Zinc	109	10000	960	
PCBs, 8082 (ppm)	UUSCO	CUSCO	Result	Qualifier
Aroclor 1260	0.1	NA	0.12	
Aroclor, Total	0.1	1.00	0.12	

	Sample ID	B26
	Sample Date	11/6/2017
	Sample Depth	9 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
cis-1,2-Dichloroethylene (cis-DCE)	250	500,000	5,700	
trans-1,2-Dichloroethylene (trans-DCE)	190	500,000	330	
Trichloroethylene (TCE)	470	200,000	5,600	
Vinyl chloride (VC)	20	13,000.0	190	

	Sample ID	B20
	Sample Date	7/5/2017
	Sample Depth	6-8 feet bgs
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Benzo(a)anthracene	1	5.6	11	
Benzo(a)pyrene	1	1	9	
Benzo(b)fluoranthene	1	5.6	11	
Benzo(k)fluoranthene	0.8	56	2.9	
Chrysene	1	56	10	
Dibenzo(a,h)anthracene	0.33	0.56	2.2	
Indeno(1,2,3-cd)pyrene	0.5	5.6	6	
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Arsenic	13	16	200	
Barium	350	400	500	
Lead	63	1000	95	
Mercury	0.18	2.8	0.38	
Selenium	3.9	1500	9.2	
Zinc	109	10000	180	

	Sample ID	B13
	Sample Date	7/5/2017
	Sample Depth	6.5 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
Acetone	50	500,000	210	D
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Benzo(a)anthracene	1	5.6	2.3	
Benzo(a)pyrene	1	1	1.9	
Benzo(b)fluoranthene	1	5.6	2	
Chrysene	1	56	3	
Indeno(1,2,3-cd)pyrene	0.5	5.6	1	
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Arsenic	13	16	27	
Copper	50	270	200	
Lead	63	1000	270	
Nickel	30	310	42	
Selenium	3.9	1500	4	
Zinc	109	10000	240	
PCBs, 8082 (ppm)	UUSCO	CUSCO	Result	Qualifier
Aroclor 1242	0.1	NA	0.38	
Aroclor 1260	0.1	NA	2.4	
Aroclor, Total	0.1	1.00	2.8	

	Sample ID	B8 Shallow
	Sample Date	6/8/2017
	Sample Depth	2 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
2-Butanone (MEK)	120	500,000	280	JD
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Copper	50	270	66.2	
Lead	63	1000	157	
Mercury	0.18	2.8	0.304	
Selenium	3.9	1500	4	
Zinc	109	10000	196	

	Sample ID	B8 deep
	Sample Date	6/8/2017
	Sample Depth	10.5-11.5 feet bgs
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Benzo(a)anthracene	1	5.6	1.58	D
Benzo(a)pyrene	1	1	3.63	D
Benzo(b)fluoranthene	1	5.6	1.23	D
Benzo(k)fluoranthene	0.8	56	1.44	D
Chrysene	1	56	1.67	D
Indeno(1,2,3-cd)pyrene	0.5	5.6	0.781	JD
PCBs, 8082 (ppm)	UUSCO	CUSCO	Result	Qualifier
Aroclor 1248	0.1	NA	0.239	
Aroclor 1260	0.1	NA	0.661	
Aroclor, Total	0.1	1.00	0.9	

	Sample ID	B12
	Sample Date	7/5/2017
	Sample Depth	4.5-6 feet bgs
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Benzo(a)anthracene	1	5.6	4.7	
Benzo(a)pyrene	1	1	5.7	
Benzo(b)fluoranthene	1	5.6	6.1	
Benzo(k)fluoranthene	0.8	56	1.3	
Chrysene	1	56	4.7	
Dibenzo(a,h)anthracene	0.33	0.56	0.92	
Indeno(1,2,3-cd)pyrene	0.5	5.6	3.2	
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Arsenic	13	16	14	
Cadmium	2.5	9.3	3.9	
Copper	50	270	140	
Lead	63	1000	790	
Mercury	0.18	2.8	0.64	
Nickel	30	310	45	
Zinc	109	10000	1,400	

	Sample ID	B19
	Sample Date	7/5/2017
	Sample Depth	4 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
Tetrachloroethylene (PCE)	1300	150,000	160000	D
Trichloroethylene (TCE)	470	200,000	1,900	D
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Indeno(1,2,3-cd)pyrene	0.5	5.6	0.51	
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Mercury	0.18	2.8	0.35	
Zinc	109	10000	110	

	Sample ID	B4
	Sample Date	6/8/2017
	Sample Depth	2 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
Acetone	50	500,000	96	B
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Lead	63	1000	200	
Mercury	0.18	2.8	0.196	
Zinc	109	10000	220	

	Sample ID	B3 Deep
	Sample Date	6/8/2017
	Sample Depth	9 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
Acetone	50	500,000	89	B
	Sample ID	B3 Shallow
	Sample Date	6/8/2017
	Sample Depth	1-3 feet bgs
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Selenium	3.9	1500	5.84	

	Sample ID	B2
	Sample Date	6/8/2017
	Sample Depth	9 feet bgs
VOCs, 8260 (ppb)	UUSCO	CUSCO	Result	Qualifier
Acetone	50	500,000	97	B

	Sample ID	B17
	Sample Date	7/5/2017
	Sample Depth	3.5 feet bgs
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Benzo(a)anthracene	1	5.6	3	
Benzo(a)pyrene	1	1	2.5	
Benzo(b)fluoranthene	1	5.6	3.2	
Benzo(k)fluoranthene	0.8	56	1.1	
Chrysene	1	56	3.2	
Dibenzo(a,h)anthracene	0.33	0.56	0.67	
Indeno(1,2,3-cd)pyrene	0.5	5.6	1.6	
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Arsenic	13	16	31	
Barium	350	400	1000	
Cadmium	2.5	9.3	7.2	
Copper	50	270	340	
Lead	63	1000	2400	
Mercury	0.18	2.8	0.69	
Nickel	30	310	370	
Zinc	109	10000	2,400	
PCBs, 8082 (ppm)	UUSCO	CUSCO	Result	Qualifier
Aroclor 1260	0.1	NA	2.3	
Aroclor, Total	0.1	1.00	2.3	
Pesticides, 8081 (ppm)	UUSCO	CUSCO	Result	Qualifier
Aldrin	0.005	0.68	3.1	
Deldrin	0.005	1.4	2.5	

	Sample ID	B1
	Sample Date	6/8/2017
	Sample Depth	7-9 feet bgs
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Selenium	3.9	1500	6.57	

	Sample ID	HA-2
	Sample Date	6/9/2017
	Sample Depth	0-2 feet bgs
SVOCs, 8270	UUSCO	CUSCO	Result	Qualifier
Benzo(a)anthracene	1	5.6	1.95	D
Benzo(a)pyrene	1	1	4.63	D
Benzo(b)fluoranthene	1	5.6	1.89	D
Benzo(k)fluoranthene	0.8	56	1.22	D
Chrysene	1	56	1.89	D
Indeno(1,2,3-cd)pyrene	0.5	5.6	0.608	D
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Lead	63	1000	367	
Mercury	0.18	2.8	0.532	
Zinc	109	10000	257	

	Sample ID	HA-1
	Sample Date	6/8/2017
	Sample Depth	0-2 feet bgs
SVOCs, 8270 (ppm)	UUSCO	CUSCO	Result	Qualifier
Chrysene	1	56	1.27	D
Metals, 6010 and 7473 (ppm)	UUSCO	CUSCO	Result	Qualifier
Lead	63	1000	167	
Mercury	0.18	2.8	0.323	
Selenium	3.9	1500	4.13	

Analyte Above UUSCO
Analyte Above CUSCO

Scale: 0 20ft 40ft 80ft 120ft

WCD GROUP
For pivotal matters.
Environmental Construction Management
WCD Group LLC
1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: (212) 631-9000
Fax: (212) 631-8066
www.wcdgroup.com

CLIENT:

79 Averne Development LLC

No.	Revision/Issue	Date
2	Add Sample Data	1/24
1	Add Sampling Locations	11/8

PROJECT NAME AND ADDRESS

3-60 Beach 79th Street
Far Rockaway,
Borough of Queens,
New York, NY

DRAWING TITLE

Soil Exceedance Figure

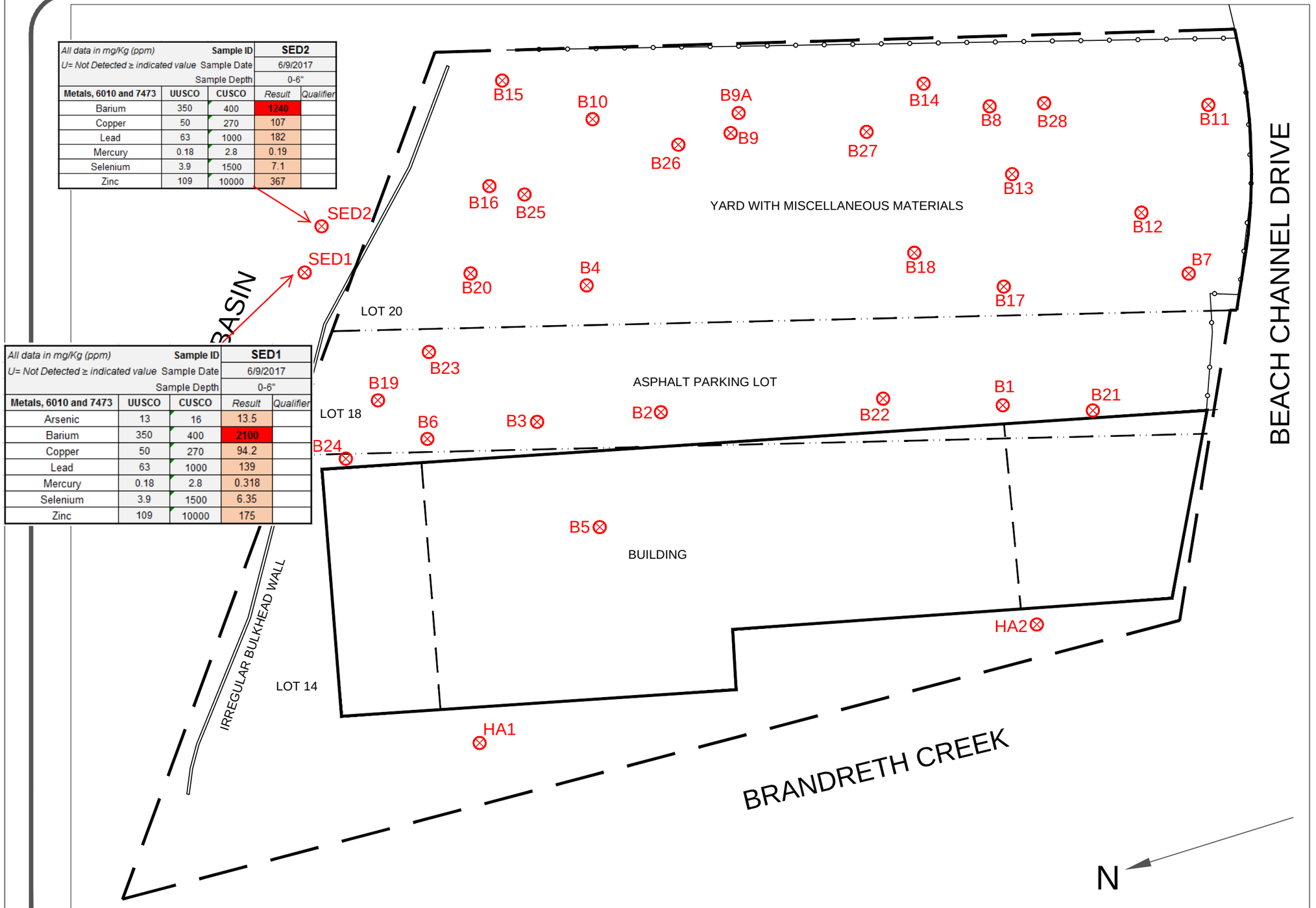
DRAWN BY: B. Zamorski

REVIEWED BY: H. Gold

Project	Drawing Name
17-9838	
Date: 6/21/17	
Scale: AS SHOWN	Sheet No.: Fig 5

All data in mg/Kg (ppm)		Sample ID	SED2	
U= Not Detected ≥ indicated value		Sample Date	6/9/2017	
		Sample Depth	0-6"	
Metals, 6010 and 7473	**UUSCO**	**CUSCO**	*Result*	*Qualifier*
Barium	350	400	**1240**	
Copper	50	270	107	
Lead	63	1000	182	
Mercury	0.18	2.8	0.19	
Selenium	3.9	1500	7.1	
Zinc	109	10000	367	

All data in mg/Kg (ppm)		Sample ID	SED1	
U= Not Detected ≥ indicated value		Sample Date	6/9/2017	
		Sample Depth	0-6"	
Metals, 6010 and 7473	**UUSCO**	**CUSCO**	*Result*	*Qualifier*
Arsenic	13	16	13.5	
Barium	350	400	**2100**	
Copper	50	270	94.2	
Lead	63	1000	139	
Mercury	0.18	2.8	0.318	
Selenium	3.9	1500	6.35	
Zinc	109	10000	175	



Analyte Above UUSCO
Analyte Above CUSCO

Scale: 0 20ft 40ft 80ft 120ft

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Environmental Construction Management

WCD Group LLC
1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: (212) 631-9000
Fax: (212) 631-8066
www.wcdgroup.com

CLIENT:

79 Averne Development LLC

No.	Revision/Issue	Date
2	Add Sed Results	1/24
1	Add Sampling Locations	11/8

PROJECT NAME AND ADDRESS

3-60 Beach 79th Street
Far Rockaway,
Borough of Queens,
New York, NY

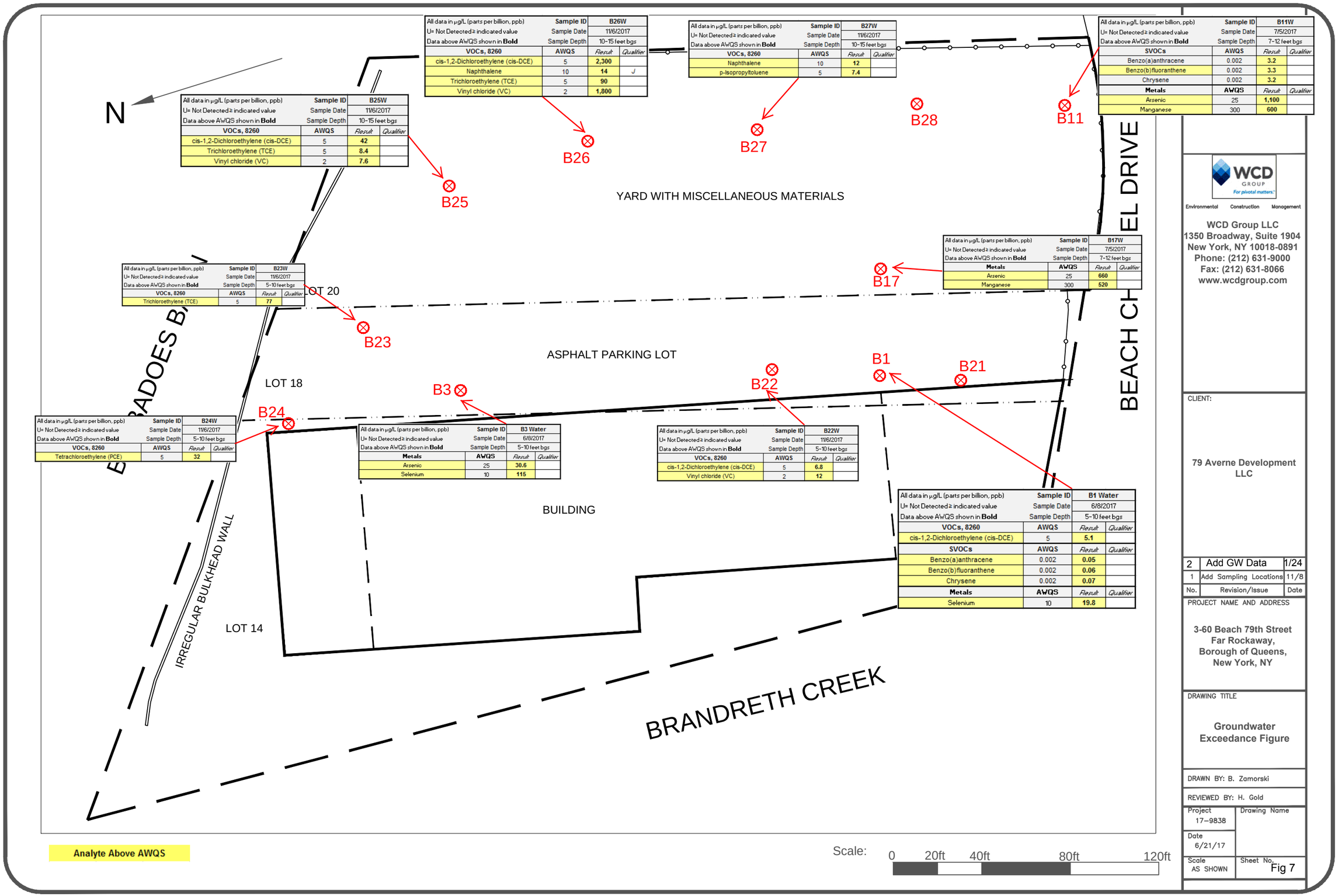
DRAWING TITLE

Sediment Exceedance Figure

DRAWN BY: B. Zamorski

REVIEWED BY: H. Gold

Project	Drawing Name
17-9838	
Date: 6/21/17	
Scale: AS SHOWN	Sheet No.: Fig 6



All data in µg/L (parts per billion, ppb)	Sample ID	B25W
U= Not Detected ≥ indicated value	Sample Date	11/6/2017
Data above AWQS shown in **Bold**	Sample Depth	10-15 feet bgs
VOCs, 8260	**AWQS**	*Result*
cis-1,2-Dichloroethylene (cis-DCE)	5	**42**
Trichloroethylene (TCE)	5	**8.4**
Vinyl chloride (VC)	2	**7.6**

All data in µg/L (parts per billion, ppb)	Sample ID	B26W
U= Not Detected ≥ indicated value	Sample Date	11/6/2017
Data above AWQS shown in **Bold**	Sample Depth	10-15 feet bgs
VOCs, 8260	**AWQS**	*Result*
cis-1,2-Dichloroethylene (cis-DCE)	5	**2,300**
Naphthalene	10	**14**
Trichloroethylene (TCE)	5	**90**
Vinyl chloride (VC)	2	**1,800**

All data in µg/L (parts per billion, ppb)	Sample ID	B27W
U= Not Detected ≥ indicated value	Sample Date	11/6/2017
Data above AWQS shown in **Bold**	Sample Depth	10-15 feet bgs
VOCs, 8260	**AWQS**	*Result*
Naphthalene	10	**12**
p-Isopropyltoluene	5	**7.4**

All data in µg/L (parts per billion, ppb)	Sample ID	B11W
U= Not Detected ≥ indicated value	Sample Date	7/5/2017
Data above AWQS shown in **Bold**	Sample Depth	7-12 feet bgs
SVOCs	**AWQS**	*Result*
Benzo(a)anthracene	0.002	**3.2**
Benzo(b)fluoranthene	0.002	**3.3**
Chrysene	0.002	**3.2**
Metals	**AWQS**	*Result*
Arsenic	25	**1,100**
Manganese	300	**600**

All data in µg/L (parts per billion, ppb)	Sample ID	B17W
U= Not Detected ≥ indicated value	Sample Date	7/5/2017
Data above AWQS shown in **Bold**	Sample Depth	7-12 feet bgs
Metals	**AWQS**	*Result*
Arsenic	25	**660**
Manganese	300	**520**

All data in µg/L (parts per billion, ppb)	Sample ID	B23W
U= Not Detected ≥ indicated value	Sample Date	11/6/2017
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs
VOCs, 8260	**AWQS**	*Result*
Trichloroethylene (TCE)	5	**77**

All data in µg/L (parts per billion, ppb)	Sample ID	B24W
U= Not Detected ≥ indicated value	Sample Date	11/6/2017
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs
VOCs, 8260	**AWQS**	*Result*
Tetrachloroethylene (PCE)	5	**32**

All data in µg/L (parts per billion, ppb)	Sample ID	B3 Water
U= Not Detected ≥ indicated value	Sample Date	6/8/2017
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs
Metals	**AWQS**	*Result*
Arsenic	25	**30.6**
Selenium	10	**115**

All data in µg/L (parts per billion, ppb)	Sample ID	B22W
U= Not Detected ≥ indicated value	Sample Date	11/6/2017
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs
VOCs, 8260	**AWQS**	*Result*
cis-1,2-Dichloroethylene (cis-DCE)	5	**6.8**
Vinyl chloride (VC)	2	**12**

All data in µg/L (parts per billion, ppb)	Sample ID	B1 Water
U= Not Detected ≥ indicated value	Sample Date	6/8/2017
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs
VOCs, 8260	**AWQS**	*Result*
cis-1,2-Dichloroethylene (cis-DCE)	5	**5.1**
SVOCs	**AWQS**	*Result*
Benzo(a)anthracene	0.002	**0.05**
Benzo(b)fluoranthene	0.002	**0.06**
Chrysene	0.002	**0.07**
Metals	**AWQS**	*Result*
Selenium	10	**19.8**

Analyte Above AWQS

Scale: 0 20ft 40ft 80ft 120ft

WCD GROUP
For pivotal matters.
Environmental Construction Management

WCD Group LLC
1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: (212) 631-9000
Fax: (212) 631-8066
www.wcdgroup.com

CLIENT:

79 Averne Development LLC

No.	Revision/Issue	Date
2	Add GW Data	1/24
1	Add Sampling Locations	11/8

PROJECT NAME AND ADDRESS

3-60 Beach 79th Street
Far Rockaway,
Borough of Queens,
New York, NY

DRAWING TITLE

Groundwater Exceedance Figure

DRAWN BY: B. Zamorski

REVIEWED BY: H. Gold

Project	Drawing Name
17-9838	
Date: 6/21/17	
Scale: AS SHOWN	Sheet No. Fig 7

TABLES

Table 6A: VOCs in Groundwater

WCD File: 17-9838CM

All data in µg/L (parts per billion, ppb)	**Sample ID**	**B1 Water**		**B3 Water**		**B11W**		**B17W**		**B21W**		**B22W**		**B23W**		**B24W**		**B25W**		**B26W**		**B27W**		**B28W**	
U= Not Detected ≥ indicated value	Sample Date	6/8/2017		6/8/2017		7/5/2017		7/5/2017		11/6/2017		11/6/2017		11/6/2017		11/6/2017		11/6/2017		11/6/2017		11/6/2017		11/6/2017	
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs		5-10 feet bgs		7-12 feet bgs		7-12 feet bgs		5-10 feet bgs		5-10 feet bgs		5-10 feet bgs		5-10 feet bgs		10-15 feet bgs		10-15 feet bgs		10-15 feet bgs		10-15 feet bgs	
VOCs, 8260	**AWQS**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
1,1,1,2-Tetrachloroethane	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,1,1-Trichloroethane	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,1,2,2-Tetrachloroethane	5	NA		NA		NA		NA		0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
1,1,2-Trichloroethane	1	NA		NA		NA		NA		1.5	*U*	1.5	*U*	1.5	*U*	1.5	*U*	1.5	*U*	30	*U*	1.5	*U*	1.5	*U*
1,1-Dichloroethane	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,1-Dichloroethylene (1,1-DCE)	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
1,1-Dichloropropene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,2,3-Trichlorobenzene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,2,3-Trichloropropane	0.04	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,2,4,5-Tetramethylbenzene	5	NA		NA		NA		NA		0.54	*J*	2	*U*	0.54	*J*	2	*U*	2	*U*	40	*U*	0.54	*J*	2	*U*
1,2,4-Trichlorobenzene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,2,4-Trimethylbenzene	5	0.23	*J*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,2-Dibromo-3-chloropropane	0.04	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,2-Dibromoethane	5	NA		NA		NA		NA		2	*U*	2	*U*	2	*U*	2	*U*	2	*U*	40	*U*	2	*U*	2	*U*
1,2-Dichlorobenzene	3	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2	*J*	50	*U*	2.5	*U*	2.5	*U*
1,2-Dichloroethane	0.6	0.2	*U*	0.2	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
1,2-Dichloroethene, Total	NA	NA		NA		NA		NA		1.2	*J*	7.7	*J*	3.4		3.3		44	*J*	2,300		1.7	*J*	2.5	*U*
1,2-Dichloropropane	1	NA		NA		NA		NA		1	*U*	1	*U*	1	*U*	1	*U*	0.19	*J*	20	*U*	1	*U*	1	*U*
1,3,5-Trimethylbenzene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,3-Dichlorobenzene	3	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,3-Dichloropropane	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,3-Dichloropropene, Total	NA	NA		NA		NA		NA		0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
1,4-Dichlorobenzene	3	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
1,4-Dioxane	NA	40	*U*	40	*U*	50	*U*	50	*U*	250	*U*	250	*U*	250	*U*	250	*U*	250	*U*	5,000	*U*	250	*U*	250	*U*
2,2-Dichloropropane	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
2-Butanone (MEK)	50	0.2	*U*	0.2	*U*	1	*U*	1	*U*	5	*U*	5	*U*	5	*U*	5	*U*	5	*U*	100	*U*	5	*U*	5	*U*
2-Hexanone	50	NA		NA		NA		NA		5	*U*	5	*U*	5	*U*	5	*U*	5	*U*	100	*U*	5	*U*	5	*U*
4-Methyl-2-pentanone	NA	NA		NA		NA		NA		5	*U*	5	*U*	5	*U*	5	*U*	5	*U*	100	*U*	5	*U*	5	*U*
Acetone	50	4.4	*B*	2.7	*B*	5	*U*	5	*U*	5	*U*	5	*U*	4.7	*J*	2	*J*	5	*U*	100	*U*	3.8	*J*	2.6	*J*
Acrylonitrile	5	NA		NA		NA		NA		5	*U*	5	*U*	5	*U*	5	*U*	5	*U*	100	*U*	5	*U*	5	*U*
Benzene	1	0.2	*U*	0.2	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
Bromobenzene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Bromochloromethane	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Bromodichloromethane	50	NA		NA		NA		NA		0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
Bromoform	50	NA		NA		NA		NA		2	*U*	2	*U*	2	*U*	2	*U*	2	*U*	40	*U*	2	*U*	2	*U*
Bromomethane	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Carbon disulfide	NA	NA		NA		NA		NA		5	*U*	5	*U*	5	*U*	5	*U*	5	*U*	100	*U*	5	*U*	5	*U*
Carbon tetrachloride	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
Chlorobenzene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Chloroethane	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Chloroform	7	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Chloromethane	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
cis-1,2-Dichloroethylene (cis-DCE)	5	**5.1**		0.7		1	*U*	1	*U*	1.2	*J*	**6.8**		3.4		3.3		**42**		**2,300**		1.7	*J*	2.5	*U*
cis-1,3-Dichloropropylene	0.4	NA		NA		NA		NA		0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
Dibromochloromethane	5	NA		NA		NA		NA		0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
Dibromomethane	5	NA		NA		NA		NA		5	*U*	5	*U*	5	*U*	5	*U*	5	*U*	100	*U*	5	*U*	5	*U*
Dichlorodifluoromethane	5	NA		NA		NA		NA		5	*U*	5	*U*	5	*U*	5	*U*	5	*U*	100	*U*	5	*U*	5	*U*
Ethyl ether	NA	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Ethyl Benzene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Hexachlorobutadiene	0.5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Isopropylbenzene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Methyl tert-butyl ether (MTBE)	10	0.2	*U*	0.2	*U*	0.5	*U*	0.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Methylene chloride	5	1	*U*	1	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Naphthalene	10	10		1	*U*	1	*U*	1	*U*	1.1	*J*	1.3	*J*	1.6	*J*	1.2	*J*	1.4	*J*	**14**	*J*	**12**		3.5	
n-Butylbenzene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
n-Propylbenzene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
o-Chlorotoluene	5	NA								2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
o-Xylene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
p- & m- Xylenes	5	0.5	*U*	0.5	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
p-Chlorotoluene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
p-Diethylbenzene	NA	NA		NA		NA		NA		2	*U*	2	*U*	2	*U*	2	*U*	2	*U*	40	*U*	2	*U*	2	*U*
p-Ethyltoluene	NA	NA		NA		NA		NA		2	*U*	2	*U*	2	*U*	2	*U*	2	*U*	40	*U*	2	*U*	2	*U*
p-Isopropyltoluene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	**7.4**		2.5	*U*
sec-Butylbenzene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Styrene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
tert-Butylbenzene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Tetrachloroethylene (PCE)	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	0.5	*U*	0.5	*U*	0.59		**32**		0.19	*J*	10	*U*	0.5	*U*	0.5	*U*
Toluene	5	0.2	*U*	0.2	*U*	1	*U*	1	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
trans-1,2-Dichloroethylene (trans-DCE)	5	0.2	*U*	0.71		1	*U*	1	*U*	2.5	*U*	0.91	*J*	2.5	*U*	2.5	*U*	1.6	*J*	50	*U*	2.5	*U*	2.5	*U*
trans-1,3-Dichloropropylene	0.4	NA		NA		NA		NA		0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	0.5	*U*	10	*U*	0.5	*U*	0.5	*U*
trans-1,4-Dichloro-2-butene	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Trichloroethylene (TCE)	5	1.4		0.2	*U*	1	*U*	1	*U*	0.4	*J*	1.3		**77**		1.9		**8.4**		**90**		3.1		0.5	*U*
Trichlorofluoromethane	5	NA		NA		NA		NA		2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*
Vinyl acetate	NA	NA		NA		NA		NA		5	*U*	5	*U*	5	*U*	5	*U*	5	*U*	100	*U*	5	*U*	5	*U*
Vinyl chloride (VC)	2	0.2	*U*	0.2	*U*	1	*U*	1	*U*	0.41	*J*	**12**		1.2		1.5		**7.6**		**1,800**		1.2		1	*U*
Xylenes, Total	5	0.6	*U*	0.6	*U*		*U*		*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	2.5	*U*	50	*U*	2.5	*U*	2.5	*U*

Detected concentrations
Concentrations above AWQS

Notes: AWQS based on NYSDEC TOGS 1.1.1 (Class GA) NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 6B: SVOCs in Groundwater

WCD File: 17-9838CM

All data in µg/L (parts per billion, ppb)	**Sample ID**	**B1 Water**		**B3 Water**		**B11W**		**B17W**	
U= Not Detected ≥ indicated value	Sample Date	6/8/2017		6/8/2017		7/5/2017		7/5/2017	
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs		5-10 feet bgs		7-12 feet bgs		7-12 feet bgs	
SVOCs	**AWQS**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
2-Methylphenol	NA	2.5	*U*	2.5	*U*	0.5	*U*	0.5	*U*
3- & 4-Methylphenols	NA	2.5	*U*	2.5	*U*	0.5	*U*	0.5	*U*
Acenaphthene	20	0.05	*U*	0.05	*U*	2	*U*	2	*U*
Acenaphthylene	NA	0.05	*U*	0.05	*U*	2	*U*	2	*U*
Anthracene	50	0.05	*U*	0.05	*U*	2	*U*	2	*U*
Benzo(a)anthracene	0.002	**0.05**		0.05	*U*	**3.2**		2	*U*
Benzo(a)pyrene	NA	0.05		0.05	*U*	2.4		2	*U*
Benzo(b)fluoranthene	0.002	**0.06**		0.05	*U*	**3.3**		2	*U*
Benzo(g,h,i)perylene	NA	0.05	*U*	0.05	*U*	2	*U*	2	*U*
Benzo(k)fluoranthene	0.002	0.05	*U*	0.05	*U*	2	*U*	2	*U*
Chrysene	0.002	**0.07**		0.05	*U*	**3.2**		2	*U*
Dibenzo(a,h)anthracene	NA	0.05	*U*	0.05	*U*	2	*U*	2	*U*
Dibenzofuran	NA	2.5	*U*	2.5	*U*	0.5	*U*	0.5	*U*
Fluoranthene	50	0.11		0.11		5.2		2	*U*
Fluorene	50	0.05	*U*	0.05	*U*	2	*U*	2	*U*
Hexachlorobenzene	0.04	0.02	*U*	0.02	*U*	2	*U*	2	*U*
Indeno(1,2,3-cd)pyrene	0.002	0.05	*U*	0.05	*U*	2	*U*	2	*U*
Naphthalene	10	0.24	*B*	0.05	*B*	0.5	*U*	0.5	*U*
Pentachlorophenol	1	0.25	*U*	0.25	*U*	10	*U*	10	*U*
Phenanthrene	50	0.13		0.06		5.2		2	*U*
Phenol	1	2.5	*U*	2.5	*U*	2	*U*	2	*U*
Pyrene	50	0.1		0.07		6.5		2	*U*

Detected concentrations

Concentrations above AWQS

Notes: AWQS based on NYSDEC TOGS 1.1.1 (Class GA) NA = not available

Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 6C: TAL Metals (Total) in Groundwater

WCD File: 17-9838CM

All data in μg/L (parts per billion, ppb)	**Sample ID**	**B1 Water**		**B3 Water**		**B11W**		**B17W**	
U= Not Detected ≥ indicated value	Sample Date	6/8/2017		6/8/2017		7/5/2017		7/5/2017	
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs		5-10 feet bgs		7-12 feet bgs		7-12 feet bgs	
Metals	**AWQS**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
Arsenic	25	6.9		**30.6**		**1,100**		**660**	
Barium	1,000	70		271		210		220	
Beryllium	3	0.333	*U*	0.333	*U*	1	*U*	1	*U*
Cadmium	5	0.556	*U*	0.556	*U*	2	*U*	2	*U*
Chromium	50	1.96		4.42		50	*U*	50	*U*
Chromium (hexavalent)	50	10	*U*	10	*U*				
Chromium (trivalent)	NA	10	*U*	10	*U*				
Copper	200	2.01		3.34		50	*U*	50	*U*
Lead	25	2.05		1.42		20		14	
Manganese	300	37.4	*B*	184	*B*	**600**		**520**	
Mercury	0.7	0.2	*U*	0.2	*U*	0.5	*U*	0.5	*U*
Nickel	100	4.84		6.64		50	*U*	50	*U*
Selenium	10	**19.8**		**115**		10	*U*	10	*U*
Silver	50	1.11	*U*	1.11	*U*	20	*U*	20	*U*
Zinc	2,000	37.2	*B*	101	*B*	86		63	

Detected concentrations

Concentrations above AWQS

Notes: AWQS based on NYSDEC TOGS 1.1.1 (Class GA) NA = not available

Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 6D: Pesticides and PCBs in Groundwater

WCD File: 17-9838CM

All data in μg/L (parts per billion, ppb)	**Sample ID**	**B1 Water**		**B3 Water**		**B11W**		**B17W**	
U= Not Detected ≥ indicated value	Sample Date	6/8/2017		6/8/2017		7/5/2017		7/5/2017	
Data above AWQS shown in **Bold**	Sample Depth	5-10 feet bgs		5-10 feet bgs		7-12 feet bgs		7-12 feet bgs	
Pesticides	**AWQS**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
4,4'-DDD	0.3	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
4,4'-DDE	0.2	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
4,4'-DDT	0.2	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
Aldrin	NA	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
alpha-BHC	0.01	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
alpha-Chlordane	0.05	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
beta-BHC	0.04	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
delta-BHC	0.04	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
Dieldrin	0.004	0.00205	*U*	0.002	*U*	0.01	*U*	0.01	*U*
Endosulfan I	NA	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
Endosulfan II	NA	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
Endosulfan sulfate	NA	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
Endrin	NA	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
gamma-BHC (Lindane)	0.05	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*
Heptachlor	0.04	0.0041	*U*	0.004	*U*	0.01	*U*	0.01	*U*

	Sample ID	**B1 Water**		**B3 Water**		**B11W**		**B17W**	
	Sample Date	6/8/2017		6/8/2017		7/5/2017		7/5/2017	
	Sample Depth	1		1		1		1	
PCBs	**AWQS**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
Aroclor 1016	0.09	0.0513	*U*	0.05	*U*	0.25	*U*	0.25	*U*
Aroclor 1221	0.09	0.0513	*U*	0.05	*U*	0.25	*U*	0.25	*U*
Aroclor 1232	0.09	0.0513	*U*	0.05	*U*	0.25	*U*	0.25	*U*
Aroclor 1242	0.09	0.0513	*U*	0.05	*U*	0.25	*U*	0.25	*U*
Aroclor 1248	0.09	0.0513	*U*	0.05	*U*	0.25	*U*	0.25	*U*
Aroclor 1254	0.09	0.0513	*U*	0.05	*U*	0.25	*U*	0.25	*U*
Aroclor 1260	0.09	0.0513	*U*	0.05	*U*	0.25	*U*	0.25	*U*
Aroclor, Total	0.09	0.0513	*U*	0.05	*U*	0.25	*U*	0.25	*U*

Detected concentrations

Concentrations above AWQS

Notes: AWQS based on NYSDEC TOGS 1.1.1 (Class GA) NA = not available

Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 5A: VOCs in Sediment

WCD File: 17-9838CM

All data in mg/Kg (ppm)			**Sample ID**	**SED1**		**SED2**	
U= Not Detected ≥ indicated value			Sample Date	6/9/2017		6/9/2017	
Data above SCOs shown in **Bold**			Sample Depth	0-6"		0-6"	
VOCs, 8260	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*
1,1,1-Trichloroethane	0.68	500	0.0033	*U*	0.0034	*U*
1,1-Dichloroethane	0.27	240	0.0033	*U*	0.0034	*U*
1,1-Dichloroethylene (1,1-DCE)	0.33	500	0.0033	*U*	0.0034	*U*
1,2,4-Trimethylbenzene	3.6	190	0.0033	*U*	0.0034	*U*
1,2-Dichlorobenzene	1.1	500	0.0033	*U*	0.0034	*U*
1,2-Dichloroethane	0.02	30	0.0033	*U*	0.0034	*U*
1,3,5-Trimethylbenzene	8.4	190	0.0033	*U*	0.0034	*U*
1,3-Dichlorobenzene	2.4	280	0.0033	*U*	0.0034	*U*
1,4-Dichlorobenzene	1.8	130	0.0033	*U*	0.0034	*U*
1,4-Dioxane	0.1	130	0.066	*U*	0.068	*U*
2-Butanone (MEK)	0.12	500	0.0033	*U*	0.0034	*U*
Acetone	0.05	500	0.0066	*U*	0.0068	*U*
Benzene	0.06	44	0.0033	*U*	0.0034	*U*
Carbon tetrachloride	0.76	22	0.0033	*U*	0.0034	*U*
Chlorobenzene	1.1	500	0.0033	*U*	0.0034	*U*
Chloroform	0.37	350	0.0033	*U*	0.0034	*U*
cis-1,2-Dichloroethylene (cis-DCE)	0.25	500	0.0033	*U*	0.0034	*U*
Ethyl Benzene	1	390	0.0033	*U*	0.0034	*U*
Methyl tert-butyl ether (MTBE)	0.93	500	0.0033	*U*	0.0034	*U*
Methylene chloride	0.05	500	0.0066	*U*	0.0068	*U*
n-Butylbenzene	12	500	0.0033	*U*	0.0034	*U*
n-Propylbenzene	3.9	500	0.0033	*U*	0.0034	*U*
o-Xylene	NC	NC	0.0033	*U*	0.0034	*U*
p- & m- Xylenes	NC	NC	0.0066	*U*	0.0068	*U*
sec-Butylbenzene	11	500	0.0033	*U*	0.0034	*U*
tert-Butylbenzene	5.9	500	0.0033	*U*	0.0034	*U*
Tetrachloroethylene (PCE)	1.3	150	0.0033	*U*	0.0034	*U*
Toluene	0.7	500	0.0033	*U*	0.0034	*U*
trans-1,2-Dichloroethylene (trans-DCE)	0.19	500	0.0033	*U*	0.0034	*U*
Trichloroethylene (TCE)	0.47	200	0.0033	*U*	0.0034	*U*
Vinyl chloride (VC)	0.02	13	0.0033	*U*	0.0034	*U*
Xylenes, Total	0.26	500	0.0099	*U*	0.01	*U*

Analyte Detected

Analyte Above UUSCO

Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available

Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 5B: SVOCs in Sediment

WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**SED1**		**SED2**	
U= Not Detected ≥ indicated value		Sample Date	6/9/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	0-6"		0-6"	
SVOCs, 8270	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*
2-Methylphenol	0.33	500	0.0554	*U*	0.0563	*U*
3- & 4-Methylphenols	NC	NC	0.0554	*U*	0.0563	*U*
Acenaphthene	20	500	0.482	*D*	0.0563	*U*
Acenaphthylene	100	500	0.091	*JD*	0.0563	*U*
Anthracene	100	500	0.879	*D*	0.0563	*U*
Benzo(a)anthracene	1	5.6	**1.49**	*D*	0.124	*D*
Benzo(a)pyrene	1	1	**2.29**	*D*	0.237	*D*
Benzo(b)fluoranthene	1	5.6	**1.27**	*D*	0.0996	*JD*
Benzo(g,h,i)perylene	100	500	0.445	*D*	0.0563	*U*
Benzo(k)fluoranthene	0.8	56	**1.04**	*D*	0.114	*D*
Chrysene	1	56	**1.41**	*D*	0.134	*D*
Dibenzo(a,h)anthracene	0.33	0.56	0.217	*D*	0.0563	*U*
Dibenzofuran	7	350	0.323	*D*	0.0563	*U*
Fluoranthene	100	500	3.41	*DE*	0.313	*D*
Fluorene	30	500	0.497	*D*	0.0563	*U*
Hexachlorobenzene	0.33	6	0.0554	*U*	0.0563	*U*
Indeno(1,2,3-cd)pyrene	0.5	5.6	0.482	*D*	0.0563	*U*
Naphthalene	12	500	0.0893	*JD*	0.0563	*U*
Pentachlorophenol	0.8	6.7	0.0554	*U*	0.0563	*U*
Phenanthrene	100	500	3.25	*D*	0.158	*D*
Phenol	0.33	500	0.0554	*U*	0.0563	*U*
Pyrene	100	500	2.4	*D*	0.214	*D*

Analyte Detected

Analyte Above UUSCO

Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available

Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 5C: Metals in Sediment

WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**SED1**		**SED2**	
U= Not Detected ≥ indicated value		Sample Date	6/9/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	0-6"		0-6"	
Metals, 6010 and 7473	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*
Arsenic	13	16	13.5		6.89	
Barium	350	400	**2100**		**1240**	
Beryllium	7.2	590	0.133	*U*	0.135	*U*
Cadmium	2.5	9.3	0.592		0.405	*U*
Chromium	NA	NA	23		23.6	
Chromium (hexavalent)	1	400	0.663	*U*	0.675	*U*
Chromium (trivalent)	30	1500	23		23.6	
Copper	50	270	94.2		107	
Lead	63	1000	139		182	
Manganese	1,600	10000	148		418	
Mercury	0.18	2.8	0.318		0.19	
Nickel	30	310	20.3		13.9	
Selenium	3.9	1500	6.35		7.1	
Silver	2	1500	0.663	*U*	0.675	*U*
Zinc	109	10000	175		367	

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 5D: Pesticides and PCBs in Sediment

WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**SED1**		**SED2**	
U= Not Detected ≥ indicated value		Sample Date	6/9/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	0-6"		0-6"	
Pesticides, 8081	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*
4,4'-DDD	0.0033	92	0.00163	*U*	0.00164	*U*
4,4'-DDE	0.0033	62	0.00163	*U*	0.00164	*U*
4,4'-DDT	0.0033	47	0.00163	*U*	0.00164	*U*
Aldrin	0.005	0.680	0.00163	*U*	0.00164	*U*
alpha-BHC	0.02	3.4	0.00163	*U*	0.00164	*U*
alpha-Chlordane	0.094	24	0.00163	*U*	0.00164	*U*
beta-BHC	0.036	3	0.00163	*U*	0.00164	*U*
delta-BHC	0.04	500	0.00163	*U*	0.00164	*U*
Dieldrin	0.005	1.4	0.00163	*U*	0.00164	*U*
Endosulfan I	2.4	200	0.00163	*U*	0.00164	*U*
Endosulfan II	2.4	200	0.00163	*U*	0.00164	*U*
Endosulfan sulfate	2.4	200	0.00163	*U*	0.00164	*U*
Endrin	0.014	89	0.00163	*U*	0.00164	*U*
gamma-BHC (Lindane)	0.1	9.2	0.00163	*U*	0.00164	*U*
Heptachlor	0.042	15	0.00163	*U*	0.00164	*U*

		Sample ID	**SED1**		**SED2**	
		Sample Date	6/9/2017		6/9/2017	
		Sample Depth	0-6"		0-6"	
PCBs, 8082	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*
Aroclor 1016	0.1	1.00	0.0218	*U*	0.0223	*U*
Aroclor 1221	0.1	1.00	0.0218	*U*	0.0223	*U*
Aroclor 1232	0.1	1.00	0.0218	*U*	0.0223	*U*
Aroclor 1242	0.1	1.00	0.0218	*U*	0.0223	*U*
Aroclor 1248	0.1	1.00	0.0218	*U*	0.0223	*U*
Aroclor 1254	0.1	1.00	0.0218	*U*	0.0223	*U*
Aroclor 1260	0.1	1.00	0.0218	*U*	0.0223	*U*
Aroclor, Total	0.1	1.00	0.0218	*U*	0.0223	*U*

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4A: VOCs in Soil

WCD File: 17-9838CM

All data in µg/L (ppb)		**Sample ID**	**B1**		**B2**		**B3 Shallow**		**B3 Deep**		**B4**		**B5**		**B6**		**B7**		**B8 Shallow**		**B8 deep**		**B9**		**B10**		**B11**		**B12**		**B13**	
U= Not Detected ≥ indicated value		Sample Date	6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/9/2017		6/9/2017		6/9/2017		6/9/2017		6/9/2017		7/5/2017		7/5/2017		7/5/2017	
		Sample Depth	8 feet bgs		9 feet bgs		2.5 feet bgs		9 feet bgs		2 feet bgs		8.5 feet bgs		8 feet bgs		9.5 feet bgs		2 feet bgs		11 feet bgs		11.5 feet bgs		8 feet bgs		3 feet bgs		4.5 feet bgs		6.5 feet bgs	
VOCs, 8260	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
1,1,1,2-Tetrachloroethane	NA	NA																														
1,1,1-Trichloroethane	680	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	1.1	*U*	1.2	*U*	1.4	*U*
1,1,2,2-Tetrachloroethane	NA	NA																														
1,1,2-Trichloroethane	NA	NA																														
1,1-Dichloroethane	270	240,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	1.1	*U*	1.2	*U*	1.4	*U*
1,1-Dichloroethylene (1,1-DCE)	330	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	1.1	*U*	1.2	*U*	1.4	*U*
1,1-Dichloropropene	NA	NA																														
1,2,3-Trichlorobenzene	NA	NA																														
1,2,3-Trichloropropane	NA	NA																														
1,2,4,5-Tetramethylbenzene	NA	NA																														
1,2,4-Trichlorobenzene	NA	NA																														
1,2,4-Trimethylbenzene	3600	190,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	560	*D*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
1,2-Dibromo-3-chloropropane	NA	NA																														
1,2-Dibromoethane	NA	NA																														
1,2-Dichlorobenzene	1100	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	45		1.1	*U*	1.2	*U*	1.4	*U*
1,2-Dichloroethane	20	30,000.0	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	1.1	*U*	1.2	*U*	1.4	*U*
1,2-Dichloroethene, Total	NA	NA																														
1,2-Dichloropropane	NA	NA																														
1,3,5-Trimethylbenzene	8400	190,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
1,3-Dichlorobenzene	2400	280,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	3.6	*J*	1.1	*U*	1.2	*U*	1.4	*U*
1,3-Dichloropropane	NA	NA																														
1,3-Dichloropropene, Total	NA	NA																														
1,4-Dichlorobenzene	1800	130,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	32		1.1	*U*	1.2	*U*	1.4	*U*
1,4-Dioxane	100	130,000	59	*U*	82	*U*	61	*U*	92	*U*	61	*U*	50	*U*	72	*U*	5,200	*U*	4,800	*U*	5,400	*U*	7,300	*U*	52	*U*	53	*U*	58	*U*	71	*U*
2,2-Dichloropropane	NA	NA																														
2-Butanone (MEK)	120	500,000	6		9.3		3.1	*U*	7	*J*	11		2.5	*U*	3.6	*J*	260	*U*	280	*JD*	270	*U*	370	*U*	32		1.1	*U*	1.2	*U*	44	*D*
2-Hexanone	NA	NA																														
4-Methyl-2-pentanone	NA	NA																														
Acetone	50	500,000	32	*B*	97	*B*	27	*B*	89	*B*	96	*B*	41	*B*	45	*B*	520	*U*	480	*U*	540	*U*	730	*U*	56		110	*D*	5.8	*U*	210	*D*
Acrylonitrile	NA	NA																														
Benzene	60	44,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
Bromobenzene	NA	NA																														
Bromochloromethane	NA	NA																														
Bromodichloromethane	NA	NA																														
Bromoform	NA	NA																														
Bromomethane	NA	NA																														
Carbon disulfide	NA	NA																														
Carbon tetrachloride	760	22,000.0	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	1.1	*U*	1.2	*U*	1.4	*U*
Chlorobenzene	1100	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	95		1.1	*U*	1.2	*U*	1.4	*U*
Chloroethane	NA	NA																														
Chloroform	370	350,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	1.1	*U*	1.2	*U*	1.4	*U*
Chloromethane	NA	NA																														
cis-1,2-Dichloroethylene (cis-DCE)	250	500,000	4.6	*J*	6.9	*J*	3.1	*U*	150		3.1	*U*	2.5	*U*	4.4	*J*	260	*U*	240	*U*	270	*U*	110,000	*D*	13		1.1	*U*	1.2	*U*	1.4	*U*
cis-1,3-Dichloropropylene	NA	NA																														
Dibromochloromethane	NA	NA																														
Dibromomethane	NA	NA																														
Dichlorodifluoromethane	NA	NA																														
Ethyl ether	NA	NA																														
Ethyl Benzene	1000	390,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
Hexachlorobutadiene	NA	NA																														
Isopropylbenzene	2300	NA																														
Methyl tert-butyl ether (MTBE)	930	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
Methylene chloride	50	500,000	5.9	*U*	8.2	*U*	6.1	*U*	9.2	*U*	6.1	*U*	5	*U*	7.2	*U*	520	*U*	480	*U*	540	*U*	730	*U*	5.2	*U*	1.1	*U*	1.2	*U*	1.4	*U*
Naphthalene	12000	NA																														
n-Butylbenzene	12000	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
n-Propylbenzene	3900	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
o-Chlorotoluene	NA	NA																														
o-Xylene	NA	NA	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
p- & m- Xylenes	NA	NA	5.9	*U*	8.2	*U*	6.1	*U*	9.2	*U*	6.1	*U*	5	*U*	7.2	*U*	520	*U*	480	*U*	540	*U*	730	*U*	5.2	*U*	0.53	*U*	0.58	*U*	0.71	*U*
p-Chlorotoluene	NA	NA																														
p-Diethylbenzene	NA	NA																														
p-Ethyltoluene	NA	NA																														
p-Isopropyltoluene	10000	NA																														
sec-Butylbenzene	11000	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
Styrene	NA	NA																														
tert-Butylbenzene	5900	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	0.53	*U*	0.58	*U*	0.71	*U*
Tetrachloroethylene (PCE)	1300	150,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	4,100	*D*	2.6	*U*	1.1	*U*	1.2	*U*	1.4	*U*
Toluene	700	500,000	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	3.4	*J*	0.53	*U*	0.58	*U*	0.86	*D*
trans-1,2-Dichloroethylene (trans-DCE)	190	500,000	3	*U*	4.1	*U*	3.1	*U*	24		3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	2,500	*D*	2.6	*U*	1.1	*U*	1.2	*U*	1.4	*U*
trans-1,3-Dichloropropylene	NA	NA																														
trans-1,4-Dichloro-2-butene	NA	NA																														
Trichloroethylene (TCE)	470	200,000	3	*U*	4.1	*U*	3.1	*U*	6.4	*J*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	0		21		1.1	*U*	1.2	*U*	1.4	*U*
Trichlorofluoromethane	NA	NA																														
Vinyl acetate	NA	NA																														
Vinyl chloride (VC)	20	13,000.0	3	*U*	4.1	*U*	3.1	*U*	4.6	*U*	3.1	*U*	2.5	*U*	3.6	*U*	260	*U*	240	*U*	270	*U*	370	*U*	2.6	*U*	1.1	*U*	1.2	*U*	2	*D*
Xylenes, Total	260	500,000	8.9	*U*	12	*U*	9.2	*U*	14	*U*	9.2	*U*	7.5	*U*	11	*U*	780	*U*	720	*U*	820	*U*	1,100	*U*	7.8	*U*	0.53	*U*	0.58	*U*	0.71	*U*

Analyte Detected

Analyte Above UUSCO

Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available

Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4A: VOCs in Soil

WCD File: 17-9838CM

All data in µg/L (ppb)		**Sample ID**	**B14**		**B15**		**B17**		**B19**		**B20**		**B22 (9FT)**		**B25 (3FT)**		**B26 (9FT)**		**B27 (5FT)**		**B28 (13FT)**	
U= Not Detected ≥ indicated value		Sample Date	7/5/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017		11/6/2017		11/6/2017		11/6/2017		11/6/2017		11/6/2017	
		Sample Depth	8 feet bgs		4 feet bgs		4 feet bgs		4 feet bgs		8 feet bgs		9 feet bgs		3 feet bgs		9 feet bgs		5 feet bgs		13 feet bgs	
VOCs, 8260	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
1,1,1,2-Tetrachloroethane	NA	NA											0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
1,1,1-Trichloroethane	680	500,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
1,1,2,2-Tetrachloroethane	NA	NA											0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
1,1,2-Trichloroethane	NA	NA											0.92	*U*	45	*U*	83	*U*	71	*U*	1.1	*U*
1,1-Dichloroethane	270	240,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	0.92	*U*	45	*U*	83	*U*	71	*U*	1.1	*U*
1,1-Dichloroethylene (1,1-DCE)	330	500,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
1,1-Dichloropropene	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
1,2,3-Trichlorobenzene	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
1,2,3-Trichloropropane	NA	NA											6.1	*U*	300	*U*	550	*U*	470	*U*	7.4	*U*
1,2,4,5-Tetramethylbenzene	NA	NA											0.46	*J*	670		34	*J*	190	*U*	3	*U*
1,2,4-Trichlorobenzene	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
1,2,4-Trimethylbenzene	3600	190,000	30	*D*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	3.1	*U*	8.5	*J*	280	*U*	240	*U*	3.7	*U*
1,2-Dibromo-3-chloropropane	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
1,2-Dibromoethane	NA	NA											2.4	*U*	120	*U*	220	*U*	190	*U*	3	*U*
1,2-Dichlorobenzene	1100	500,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	3.1	*U*	150	*U*	22	*J*	240	*U*	3.7	*U*
1,2-Dichloroethane	20	30,000.0	1.7	*U*	1.3	*U*	1.2	*U*	700	*U*	1.1	*U*	0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
1,2-Dichloroethene, Total	NA	NA											0.6	*J*	30	*U*	6,000		170		0.74	*U*
1,2-Dichloropropane	NA	NA											2.1	*U*	100	*U*	190	*U*	160	*U*	2.6	*U*
1,3,5-Trimethylbenzene	8400	190,000	12	*D*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
1,3-Dichlorobenzene	2400	280,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
1,3-Dichloropropane	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
1,3-Dichloropropene, Total	NA	NA											0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
1,4-Dichlorobenzene	1800	130,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
1,4-Dioxane	100	130,000	84	*U*	67	*U*	62	*U*	70,000	*U*	57	*U*	24	*U*	1,200	*U*	2,200	*U*	1,900	*U*	30	*U*
2,2-Dichloropropane	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
2-Butanone (MEK)	120	500,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	6.1	*U*	300	*U*	550	*U*	470	*U*	2.6	*J*
2-Hexanone	NA	NA											6.1	*U*	300	*U*	550	*U*	470	*U*	7.4	*U*
4-Methyl-2-pentanone	NA	NA											6.1	*U*	300	*U*	550	*U*	470	*U*	7.4	*U*
Acetone	50	500,000	8.4	*U*	6.7	*U*	6.2	*U*	7,000	*U*	5.7	*U*	10		300	*U*	550	*U*	330	*J*	23	
Acrylonitrile	NA	NA											6.1	*U*	300	*U*	550	*U*	470	*U*	7.4	*U*
Benzene	60	44,000	0.84	*U*	0.67	*U*	6.6	*D*	700	*U*	0.57	*U*	0.15	*J*	30	*U*	55	*U*	47	*U*	1.2	
Bromobenzene	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
Bromochloromethane	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
Bromodichloromethane	NA	NA											0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
Bromoform	NA	NA											2.4	*U*	120	*U*	220	*U*	190	*U*	3	*U*
Bromomethane	NA	NA											1.2	*U*	60	*U*	110	*U*	95	*U*	1.5	*U*
Carbon disulfide	NA	NA											5.1	*J*	40	*J*	79	*J*	63	*J*	5.6	*J*
Carbon tetrachloride	760	22,000.0	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
Chlorobenzene	1100	500,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
Chloroethane	NA	NA											1.2	*U*	60	*U*	110	*U*	95	*U*	1.5	*U*
Chloroform	370	350,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	0.92	*U*	45	*U*	83	*U*	71	*U*	1.1	*U*
Chloromethane	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
cis-1,2-Dichloroethylene (cis-DCE)	250	500,000	1.7	*D*	1.3	*U*	2.5	*D*	1,400	*U*	96	*D*	0.41	*J*	30	*U*	5,700		170		0.74	*U*
cis-1,3-Dichloropropylene	NA	NA											0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
Dibromochloromethane	NA	NA											0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
Dibromomethane	NA	NA											6.1	*U*	300	*U*	550	*U*	470	*U*	7.4	*U*
Dichlorodifluoromethane	NA	NA											6.1	*U*	300	*U*	550	*U*	470	*U*	7.4	*U*
Ethyl ether	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
Ethyl Benzene	1000	390,000	4.9	*D*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	0.13	*J*	18	*J*	55	*U*	47	*U*	0.74	*U*
Hexachlorobutadiene	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
Isopropylbenzene	2300	NA											0.61	*U*	35		55	*U*	47	*U*	0.74	*U*
Methyl tert-butyl ether (MTBE)	930	500,000	0.84	*U*	0.67	*U*	0.62	*U*	700	*U*	0.57	*U*	1.2	*U*	5.8	*J*	8.7	*J*	7.6	*J*	1.5	*U*
Methylene chloride	50	500,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	1.1	*U*	6.1	*U*	300	*U*	550	*U*	470	*U*	7.4	*U*
Naphthalene	12000	NA											0.09	*J*	150	*U*	83	*J*	6.9	*J*	0.51	*J*
n-Butylbenzene	12000	500,000	2.7	*D*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	0.61	*U*	140		55	*U*	47	*U*	0.74	*U*
n-Propylbenzene	3900	500,000	2.7	*D*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	0.61	*U*	69		55	*U*	47	*U*	0.74	*U*
o-Chlorotoluene	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
o-Xylene	NA	NA	22	*D*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	1.2	*U*	60	*U*	110	*U*	95	*U*	0.42	*J*
p- & m- Xylenes	NA	NA	42	*D*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	0.26	*J*	60	*U*	110	*U*	95	*U*	1.5	*U*
p-Chlorotoluene	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
p-Diethylbenzene	NA	NA											2.4	*U*	130		220	*U*	190	*U*	3	*U*
p-Ethyltoluene	NA	NA											2.4	*U*	14	*J*	220	*U*	190	*U*	3	*U*
p-Isopropyltoluene	10000	NA											0.61	*U*	45		40	*J*	7,700		0.74	*U*
sec-Butylbenzene	11000	500,000	0.84	*U*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	0.61	*U*	170		55	*U*	47	*U*	0.74	*U*
Styrene	NA	NA											1.2	*U*	60	*U*	110	*U*	95	*U*	1.5	*U*
tert-Butylbenzene	5900	500,000	0.84	*U*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	3.1	*U*	16	*J*	280	*U*	240	*U*	3.7	*U*
Tetrachloroethylene (PCE)	1300	150,000	1.7	*U*	1.3	*U*	1.2	*U*	**160000**	*D*	1.1	*U*	0.61	*U*	30	*U*	140		16	*J*	0.74	*U*
Toluene	700	500,000	3.9	*D*	0.67	*U*	1.3	*D*	1,400	*U*	0.57	*U*	0.92	*U*	45	*U*	33	*J*	71	*U*	0.3	*J*
trans-1,2-Dichloroethylene (trans-DCE)	190	500,000	1.7	*U*	1.3	*U*	1.2	*U*	1,400	*U*	2.4	*D*	0.19	*J*	45	*U*	330		71	*U*	1.1	*U*
trans-1,3-Dichloropropylene	NA	NA											0.61	*U*	30	*U*	55	*U*	47	*U*	0.74	*U*
trans-1,4-Dichloro-2-butene	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
Trichloroethylene (TCE)	470	200,000	9.7	*D*	1.3	*U*	6.1	*D*	1,900	*D*	8.4	*D*	0.3	*J*	30	*U*	5,600		590		0.74	*U*
Trichlorofluoromethane	NA	NA											3.1	*U*	150	*U*	280	*U*	240	*U*	3.7	*U*
Vinyl acetate	NA	NA											6.1	*U*	300	*U*	550	*U*	470	*U*	7.4	*U*
Vinyl chloride (VC)	20	13,000.0	1.7	*U*	1.3	*U*	2	*D*	1,400	*U*	8	*D*	0.26	*J*	60	*U*	190		95	*U*	1.5	*U*
Xylenes, Total	260	500,000	64	*D*	0.67	*U*	0.62	*U*	1,400	*U*	0.57	*U*	0.26	*J*	60	*U*	110	*U*	95	*U*	0.42	*J*

Analyte Detected

Analyte Above UUSCO

Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4B: SVOCs in Soils
WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B1**		**B2**		**B3 Shallow**		**B3 Deep**		**B4**		**B5**		**B6**		**B7**	
U= Not Detected ≥ indicated value		Sample Date	6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	7-9 feet bgs		8-10 feet bgs		1-3 feet bgs		7-9 feet bgs		2-3 feet bgs		8-10 feet bgs		7-9 feet bgs		8.5-10 feet bgs	
SVOCs, 8270	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
2-Methylphenol	0.33	500	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
3- & 4-Methylphenols	NC	NC	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Acenaphthene	20	500	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.0977	*JD*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Acenaphthylene	100	500	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Anthracene	100	500	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.234	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Benzo(a)anthracene	1	5.6	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.625	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Benzo(a)pyrene	1	1	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.15	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Benzo(b)fluoranthene	1	5.6	0.104	*U*	0.0939	*U*	0.0997	*JD*	0.0834	*U*	0.257	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Benzo(g,h,i)perylene	100	500	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.14	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Benzo(k)fluoranthene	0.8	56	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.219	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Chrysene	1	56	0.104	*U*	0.0939	*U*	0.194	*D*	0.0834	*U*	0.943	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Dibenzo(a,h)anthracene	0.33	0.56	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Dibenzofuran	7	350	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Fluoranthene	100	500	0.104	*U*	0.0939	*U*	0.115	*JD*	0.0834	*U*	0.917	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Fluorene	30	500	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.102	*JD*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Hexachlorobenzene	0.33	6	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Indeno(1,2,3-cd)pyrene	0.5	5.6	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.129	*JD*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Naphthalene	12	500	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Pentachlorophenol	0.8	6.7	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Phenanthrene	100	500	0.104	*U*	0.0939	*U*	0.157	*D*	0.0834	*U*	0.612	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Phenol	0.33	500	0.104	*U*	0.0939	*U*	0.0694	*U*	0.0834	*U*	0.068	*U*	0.0758	*U*	0.0802	*U*	0.0521	*U*
Pyrene	100	500	0.104	*U*	0.0939	*U*	0.122	*JD*	0.0834	*U*	3.33	*D*	0.0758	*U*	0.0802	*U*	0.0521	*U*

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4B: SVOCs in Soils
WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B8 Shallow**		**B8 deep**		**B9**		**B10**		**B11**		**B12**		**B13**		**B14**	
U= Not Detected ≥ indicated value		Sample Date	6/9/2017		6/9/2017		6/9/2017		6/9/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017	
Data above SCOs shown in **Bold**		Sample Depth	2-4 feet		10.5-11.5 feet bgs		10.5-12.5 feet bgs		8-9 feet bgs		2-4 feet bgs		4.5-6 feet bgs		6.5-8 feet bgs		10-12 feet bgs	
SVOCs, 8270	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
2-Methylphenol	0.33	500	0.046	*U*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.059	*U*	0.05	*U*	0.063	*U*	0.2	*U*
3- & 4-Methylphenols	NC	NC	0.046	*U*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.059	*U*	0.05	*U*	0.063	*U*	0.2	*U*
Acenaphthene	20	500	0.0909	*JD*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.42		0.48		1.1		2.3	
Acenaphthylene	100	500	0.046	*U*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.24	*U*	0.81		0.25	*U*	0.78	*U*
Anthracene	100	500	0.106	*D*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.98		0.83		1.6		4.6	
Benzo(a)anthracene	1	5.6	0.304	*D*	1.58	*D*	0.0785	*U*	0.201	*D*	2.3		4.7		2.3		**12**	
Benzo(a)pyrene	1	1	0.637	*D*	**3.63**	*D*	0.0785	*U*	0.366	*D*	**1.9**		**5.7**		**1.9**		**13**	
Benzo(b)fluoranthene	1	5.6	0.286	*D*	1.23	*D*	0.0785	*U*	0.186	*D*	2.4		**6.1**		1.8		**14**	
Benzo(g,h,i)perylene	100	500	0.165	*D*	1.03	*D*	0.0785	*U*	0.0941	*JD*	1.2		4.5		0.89		11	
Benzo(k)fluoranthene	0.8	56	0.312	*D*	1.44	*D*	0.0785	*U*	0.201	*D*	0.74		1.3		0.54		4.6	
Chrysene	1	56	0.359	*D*	1.87	*D*	0.0785	*U*	0.246	*D*	2.5		4.7		3		14	
Dibenzo(a,h)anthracene	0.33	0.56	0.0638	*JD*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.33		**0.92**		0.27		**3**	
Dibenzofuran	7	350	0.046	*U*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.15		0.085		0.11		0.81	
Fluoranthene	100	500	0.635	*D*	2.73	*D*	0.0785	*U*	0.394	*D*	4.2		5.8		3.6		24	
Fluorene	30	500	0.0814	*JD*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.39		0.36		0.88		1.7	
Hexachlorobenzene	0.33	6	0.046	*U*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.24	*U*	0.2	*U*	0.25	*U*	0.78	*U*
Indeno(1,2,3-cd)pyrene	0.5	5.6	0.165	*D*	0.781	*JD*	0.0785	*U*	0.0873	*JD*	1.1		3.2		0.64		**9.1**	
Naphthalene	12	500	0.0748	*JD*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.09		0.22		0.24		0.9	
Pentachlorophenol	0.8	6.7	0.046	*U*	0.485	*U*	0.0785	*U*	0.0531	*U*	1.2	*U*	0.99	*U*	1.3	*U*	3.9	*U*
Phenanthrene	100	500	0.388	*D*	0.485	*U*	0.0785	*U*	0.156	*D*	3.7		3.3		6.6		16	
Phenol	0.33	500	0.046	*U*	0.485	*U*	0.0785	*U*	0.0531	*U*	0.24	*U*	0.2	*U*	0.25	*U*	0.78	*U*
Pyrene	100	500	0.488	*D*	2.5	*D*	0.0785	*U*	0.314	*D*	4.5		9.5		6.4		26	

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4B: SVOCs in Soils
WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B15**		**B17**		**B19**		**B20**		**HA-1**		**HA-2**	
U= Not Detected ≥ indicated value		Sample Date	7/5/2017		7/5/2017		7/5/2017		7/5/2017		6/8/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	4-6 feet bgs		3-5 feet bgs		4-6 feet bgs		6-8 feet bgs		0-2 feet bgs		0-2 feet bgs	
SVOCs, 8270	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
2-Methylphenol	0.33	500	0.081	*U*	0.11	*U*	0.0091	*U*	0.15	*U*	0.0713	*U*	0.0457	*U*
3- & 4-Methylphenols	NC	NC	0.081	*U*	0.11	*U*	0.0091	*U*	0.15	*U*	0.0713	*U*	0.0457	*U*
Acenaphthene	20	500	0.32	*U*	0.43	*U*	0.036	*U*	3		0.0713	*U*	0.419	*D*
Acenaphthylene	100	500	0.32	*U*	0.43	*U*	0.036	*U*	0.58	*U*	0.0713	*U*	0.265	*D*
Anthracene	100	500	0.32	*U*	0.82		0.11		7.4		0.0921	*JD*	0.793	*D*
Benzo(a)anthracene	1	5.6	0.41		3		0.68		**11**		0.908	*D*	1.95	*D*
Benzo(a)pyrene	1	1	0.32	*U*	**2.5**		0.74		**9**		0.817	*D*	**4.63**	*D*
Benzo(b)fluoranthene	1	5.6	0.45		3.2		1		**11**		0.814	*D*	1.89	*D*
Benzo(g,h,i)perylene	100	500	0.32	*U*	1.9		0.59		6.4		0.45	*D*	0.573	*D*
Benzo(k)fluoranthene	0.8	56	0.32	*U*	1.1		0.3		2.9		0.546	*D*	1.22	*D*
Chrysene	1	56	0.34		3.2		0.71		10		1.27	*D*	1.89	*D*
Dibenzo(a,h)anthracene	0.33	0.56	0.32	*U*	**0.67**		0.2		**2.2**		0.207	*D*	0.318	*D*
Dibenzofuran	7	350	0.081	*U*	0.22		0.02		2.5		0.0713	*U*	0.307	*D*
Fluoranthene	100	500	0.69		4.8		0.97		27		1.27	*D*	5.02	*D*
Fluorene	30	500	0.32	*U*	0.43	*U*	0.036	*U*	3.3		0.0713	*U*	0.551	*D*
Hexachlorobenzene	0.33	6	0.32	*U*	0.43	*U*	0.036	*U*	0.58	*U*	0.0713	*U*	0.0457	*U*
Indeno(1,2,3-cd)pyrene	0.5	5.6	0.32	*U*	1.6		0.51		6		0.326	*D*	0.608	*D*
Naphthalene	12	500	0.081	*U*	0.77		0.029		2.2		0.0713	*U*	0.109	*D*
Pentachlorophenol	0.8	6.7	1.6	*U*	2.1	*U*	0.18	*U*	2.9	*U*	0.0713	*U*	0.0457	*U*
Phenanthrene	100	500	0.59		3.9		0.39		30		0.933	*D*	4.4	*D*
Phenol	0.33	500	0.32	*U*	0.43	*U*	0.036	*U*	0.58	*U*	0.0713	*U*	0.0457	*U*
Pyrene	100	500	0.77		5.3		0.97		26		1.36	*D*	2.75	*D*

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4C: Metals in Soils

WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B1**		**B2**		**B3 Shallow**		**B3 Deep**		**B4**		**B5**		**B6**		**B7**		**B8 Shallow**	
U= Not Detected ≥ indicated value		Sample Date	6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/9/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	7-9 feet bgs		8-10 feet bgs		1-3 feet bgs		7-9 feet bgs		2-3 feet bgs		8-10 feet bgs		7-9 feet bgs		8.5-10 feet bgs		2-4 feet	
Metals, 6010 and 7473	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
Arsenic	13	16	12.9		5.87		11.5		5.08		4.02		1.22	*U*	1.29	*U*	1.25	*U*	6.07	
Barium	350	400	22.3		20.3		48.6		19.8		90.5		2.31		14		3.17		104	
Beryllium	7.2	590	0.373		0.336		0.246		0.361		0.274		0.122	*U*	0.129	*U*	0.125	*U*	0.203	
Cadmium	2.5	9.3	0.498	*U*	0.451	*U*	0.332	*U*	0.399	*U*	1.15		0.365	*U*	0.386	*U*	0.374	*U*	0.704	
Chromium	NC	NC	27.4		24.4		6.33		22.8		29.5		1.44		3.9		3.19		18.7	
Chromium (hexavalent)	1	400	0.829	*U*	0.752	*U*	0.554	*U*	0.665	*U*	0.545	*U*	0.608	*U*	0.643	*U*	0.624	*U*	0.552	*U*
Chromium (trivalent)	30	1500	27.4		24.4		6.33		22.8		29.5		1.44		3.9		3.19		18.7	
Copper	50	270	7.34		6.81		19		6.07		46.7		1.27		4.64		0.72		68.2	
Lead	63	1000	6.01		5.91		18.6		4.81		200		3.07		2.3		1.25		157	
Manganese	1,600	10000	218		138		20.6		129		217		9.45		21.6		18.6		236	
Mercury	0.18	2.8	0.0498	*U*	0.0451	*U*	0.0966		0.0399	*U*	0.196		0.0365	*U*	0.0386	*U*	0.0374	*U*	0.304	
Nickel	30	310	18		16.8		11.7		14.5		16.9		2.89		5.6		1.36		17.6	
Selenium	3.9	1500	6.57		3.09		5.84		3.4		1.49		1.22	*U*	1.61		1.25	*U*	4.15	
Silver	2	1500	0.829	*U*	0.752	*U*	0.554	*U*	0.665	*U*	0.545	*U*	0.608	*U*	0.643	*U*	0.624	*U*	0.552	*U*
Zinc	109	10000	38.4		33.5		19.6		31		220		4.2		23.3		3.24		196	

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4C: Metals in Soils

WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B8 deep**		**B9**		**B10**		**B11**		**B12**		**B13**		**B14**		**B15**		**B17**	
U= Not Detected ≥ indicated value		Sample Date	6/9/2017		6/9/2017		6/9/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017	
Data above SCOs shown in **Bold**		Sample Depth	10.5-11.5 feet bgs		10.5-12.5 feet bgs		8-9 feet bgs		2-4 feet bgs		4.5-6 feet bgs		6.5-8 feet bgs		10-12 feet bgs		4-6 feet bgs		3-5 feet bgs	
Metals, 6010 and 7473	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
Arsenic	13	16	2.52		3.3		4.96		11		14		**27**		**100**		9.3		**31**	
Barium	350	400	30.5		42.7		**2160**		210		230		330		200		160		**1000**	
Beryllium	7.2	590	0.116	*U*	0.211		0.127	*U*	0.45		0.36		0.25	*U*	0.61		0.34		0.79	
Cadmium	2.5	9.3	0.349	*U*	0.564	*U*	0.381	*U*	2.6		3.9		2.1		**13**		0.44		7.2	
Chromium	NC	NC	1.73		15.6		4.94		73		23		37		35		43		860	
Chromium (hexavalent)	1	400	0.582	*U*	0.939	*U*	0.636	*U*												
Chromium (trivalent)	30	1500	1.73		15.6		4.94													
Copper	50	270	4.53		10.2		251		240		140		200		**280**		73		**340**	
Lead	63	1000	4.26		30.2		69.4		630		790		270		**1900**		170		**2400**	
Manganese	1,600	10000	41.7		75.3		6.56		850		220		100		220		640		570	
Mercury	0.18	2.8	0.0349	*U*	0.108		0.104		0.54		0.64		0.14		1.8		0.33		0.69	
Nickel	30	310	1.09		10.4		4.27		94		45		42		22		32		**370**	
Selenium	3.9	1500	1.16	*U*	3.02		3.1		2.4	*U*	2.9		4		5.2		2.2	*U*	3.7	
Silver	2	1500	0.582	*U*	0.939	*U*	0.636	*U*	0.58		0.28		0.78		1.2		0.22	*U*	0.98	
Zinc	109	10000	63.3		67.4		18.3		960		1,400		240		6,500		210		2,400	

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 4C: Metals in Soils

WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B19**		**B20**		**HA-1**		**HA-2**	
U= Not Detected ≥ indicated value		Sample Date	7/5/2017		7/5/2017		6/8/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	4-6 feet bgs		6-8 feet bgs		0-2 feet bgs		0-2 feet bgs	
Metals, 6010 and 7473	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
Arsenic	13	16	6.1		**200**		7		3.73	
Barium	350	400	180		**500**		119		113	
Beryllium	7.2	590	0.29		0.71		0.154		0.109	*U*
Cadmium	2.5	9.3	0.43	*U*	0.6		0.343	*U*	0.787	
Chromium	NC	NC	32		13		4.72		14.7	
Chromium (hexavalent)	1	400					0.571	*U*	0.546	*U*
Chromium (trivalent)	30	1500					4.72		14.7	
Copper	50	270	46		31		37.8		41.4	
Lead	63	1000	58		95		167		367	
Manganese	1,600	10000	170		91		59.4		75.3	
Mercury	0.18	2.8	0.35		0.38		0.323		0.532	
Nickel	30	310	19		13		6.36		7.92	
Selenium	3.9	1500		*U*	9.2		4.13		2.18	
Silver	2	1500	0.38			*U*	0.571	*U*	0.546	*U*
Zinc	109	10000	110		180		60.5		257	

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 5D: Pesticides and PCBs in Soils
WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B1**		**B2**		**B3 Shallow**		**B3 Deep**		**B4**		**B5**		**B6**		**B7**		**B8 Shallow**	
U= Not Detected ≥ indicated value		Sample Date	6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/9/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	7-9 feet bgs		8-10 feet bgs		1-3 feet bgs		7-9 feet bgs		2-3 feet bgs		8-10 feet bgs		7-9 feet bgs		8.5-10 feet bgs		2-4 feet	
Pesticides, 8081	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
4,4'-DDD	0.0033	92	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
4,4'-DDE	0.0033	62	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
4,4'-DDT	0.0033	47	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
Aldrin	0.005	0.68	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
alpha-BHC	0.02	3.4	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
alpha-Chlordane	0.094	3.4	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
beta-BHC	0.036	3	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
delta-BHC	0.04	500	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
Dieldrin	0.005	1.4	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
Endosulfan I	2.4	200	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
Endosulfan II	2.4	200	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
Endosulfan sulfate	2.4	200	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
Endrin	0.014	89	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
gamma-BHC (Lindane)	0.1	9.2	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*
Heptachlor	0.042	15	0.00161	*U*	0.00165	*U*	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00165	*U*	0.00162	*U*

		Sample ID	**B1**		**B2**		**B3 Shallow**		**B3 Deep**		**B4**		**B5**		**B6**		**B7**		**B8 Shallow**	
		Sample Date	6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/8/2017		6/9/2017		6/9/2017	
		Sample Depth	7-9 feet bgs		8-10 feet bgs		1-3 feet bgs		7-9 feet bgs		2-3 feet bgs		8-10 feet bgs		7-9 feet bgs		8.5-10 feet bgs		2-4 feet	
PCBs, 8082	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
Aroclor 1016	0.1	NA	0.027	*U*	0.025	*U*	0.0184	*U*	0.022	*U*	0.0182	*U*	0.0202	*U*	0.0214	*U*	0.0208	*U*	0.018	*U*
Aroclor 1221	0.1	NA	0.027	*U*	0.025	*U*	0.0184	*U*	0.022	*U*	0.0182	*U*	0.0202	*U*	0.0214	*U*	0.0208	*U*	0.018	*U*
Aroclor 1232	0.1	NA	0.027	*U*	0.025	*U*	0.0184	*U*	0.022	*U*	0.0182	*U*	0.0202	*U*	0.0214	*U*	0.0208	*U*	0.018	*U*
Aroclor 1242	0.1	NA	0.027	*U*	0.025	*U*	0.0184	*U*	0.022	*U*	0.0182	*U*	0.0202	*U*	0.0214	*U*	0.0208	*U*	0.018	*U*
Aroclor 1248	0.1	NA	0.027	*U*	0.025	*U*	0.0184	*U*	0.022	*U*	0.0182	*U*	0.0202	*U*	0.0214	*U*	0.0208	*U*	0.018	*U*
Aroclor 1254	0.1	NA	0.027	*U*	0.025	*U*	0.0184	*U*	0.022	*U*	0.0182	*U*	0.0202	*U*	0.0214	*U*	0.0208	*U*	0.018	*U*
Aroclor 1260	0.1	NA	0.027	*U*	0.025	*U*	0.0184	*U*	0.022	*U*	0.0182	*U*	0.0202	*U*	0.0214	*U*	0.0208	*U*	0.018	*U*
Aroclor, Total	0.1	1.00	0.027	*U*	0.025	*U*	0.0184	*U*	0.022	*U*	0.0182	*U*	0.0202	*U*	0.0214	*U*	0.0208	*U*	0.018	*U*

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 5D: Pesticides and PCBs in Soils
WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B8 deep**		**B9**		**B10**		**B11**		**B12**		**B13**		**B14**		**B15**		**B17**	
U= Not Detected ≥ indicated value		Sample Date	6/9/2017		6/9/2017		6/9/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017	
Data above SCOs shown in **Bold**		Sample Depth	10.5-11.5 feet bgs		10.5-12.5 feet bgs		8-9 feet bgs		2-4 feet bgs		4.5-6 feet bgs		6.5-8 feet bgs		10-12 feet bgs		4-6 feet bgs		3-5 feet bgs	
Pesticides, 8081	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
4,4'-DDD	0.0033	92	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0029	*U*	0.003	*U*	0.0032	*U*	0.0039	*U*	0.013	*U*	0.064	*U*
4,4'-DDE	0.0033	62	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0029	*U*	0.003	*U*	0.0032	*U*	0.0039	*U*	0.013	*U*	0.064	*U*
4,4'-DDT	0.0033	47	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0029	*U*	0.003	*U*	0.0032	*U*	0.0039	*U*	0.013	*U*	0.064	*U*
Aldrin	0.005	0.68	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0059	*U*	0.006	*U*	0.0063	*U*	0.0078	*U*	0.027	*U*	**3.1**	
alpha-BHC	0.02	3.4	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0012	*U*	0.0012	*U*	0.0013	*U*	0.0016	*U*	0.0054	*U*	0.026	*U*
alpha-Chlordane	0.094	3.4	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0059	*U*	0.006	*U*	0.0063	*U*	0.0078	*U*	0.027	*U*	0.13	*U*
beta-BHC	0.036	3	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0012	*U*	0.0012	*U*	0.0013	*U*	0.0016	*U*	0.0054	*U*	0.026	*U*
delta-BHC	0.04	500	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0059	*U*	0.006	*U*	0.0063	*U*	0.0078	*U*	0.027	*U*	0.13	*U*
Dieldrin	0.005	1.4	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0012	*U*	0.0012	*U*	0.0013	*U*	0.0016	*U*	0.0054	*U*	**2.5**	
Endosulfan I	2.4	200	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0059	*U*	0.006	*U*	0.0063	*U*	0.0078	*U*	0.027	*U*	0.13	*U*
Endosulfan II	2.4	200	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0059	*U*	0.006	*U*	0.0063	*U*	0.0078	*U*	0.027	*U*	0.13	*U*
Endosulfan sulfate	2.4	200	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0059	*U*	0.006	*U*	0.0063	*U*	0.0078	*U*	0.027	*U*	0.13	*U*
Endrin	0.014	89	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0059	*U*	0.006	*U*	0.0063	*U*	0.0078	*U*	0.027	*U*	0.13	*U*
gamma-BHC (Lindane)	0.1	9.2	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0012	*U*	0.0012	*U*	0.0013	*U*	0.0016	*U*	0.0054	*U*	0.026	*U*
Heptachlor	0.042	15	0.00165	*U*	0.00164	*U*	0.00165	*U*	0.0059	*U*	0.006	*U*	0.0063	*U*	0.0078	*U*	0.027	*U*	0.13	*U*

		Sample ID	**B8 deep**		**B9**		**B10**		**B11**		**B12**		**B13**		**B14**		**B15**		**B17**	
		Sample Date	6/9/2017		6/9/2017		6/9/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017		7/5/2017	
		Sample Depth	10.5-11.5 feet bgs		10.5-12.5 feet bgs		8-9 feet bgs		2-4 feet bgs		4.5-6 feet bgs		6.5-8 feet bgs		10-12 feet bgs		4-6 feet bgs		3-5 feet bgs	
PCBs, 8082	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
Aroclor 1016	0.1	NA	0.0194	*U*	0.0311	*U*	0.0212	*U*	0.029	*U*	0.03	*U*	0.032	*U*	0.039	*U*	0.027	*U*	0.16	*U*
Aroclor 1221	0.1	NA	0.0194	*U*	0.0311	*U*	0.0212	*U*	0.029	*U*	0.03	*U*	0.032	*U*	0.039	*U*	0.027	*U*	0.16	*U*
Aroclor 1232	0.1	NA	0.0194	*U*	0.0311	*U*	0.0212	*U*	0.029	*U*	0.03	*U*	0.032	*U*	0.039	*U*	0.027	*U*	0.16	*U*
Aroclor 1242	0.1	NA	0.0194	*U*	0.0311	*U*	0.0212	*U*	0.029	*U*	0.03	*U*	**0.36**		0.039	*U*	0.027	*U*	0.16	*U*
Aroclor 1248	0.1	NA	0.239		0.0311	*U*	0.0212	*U*	0.029	*U*	0.03	*U*	0.032	*U*	0.039	*U*	0.027	*U*	0.16	*U*
Aroclor 1254	0.1	NA	0.0194	*U*	0.0311	*U*	0.0212	*U*	0.029	*U*	0.03	*U*	0.032	*U*	0.039	*U*	0.027	*U*	0.16	*U*
Aroclor 1260	0.1	NA	0.661		0.0311	*U*	0.0212	*U*	**0.12**		0.03	*U*	**2.4**		0.039	*U*	0.027	*U*	**2.3**	
Aroclor, Total	0.1	1.00	0.9		0.0311	*U*	0.0212	*U*	**0.12**		0.03	*U*	**2.8**		0.039	*U*	0.027	*U*	**2.3**	

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Table 5D: Pesticides and PCBs in Soils

WCD File: 17-9838CM

All data in mg/Kg (ppm)		**Sample ID**	**B19**		**B20**		**HA-1**		**HA-2**	
U= Not Detected ≥ indicated value		Sample Date	7/5/2017		7/5/2017		6/8/2017		6/9/2017	
Data above SCOs shown in **Bold**		Sample Depth	4-6 feet bgs		6-8 feet bgs		0-2 feet bgs		0-2 feet bgs	
Pesticides, 8081	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
4,4'-DDD	0.0033	92	0.0027	*U*	0.0029	*U*	0.00165	*U*	0.00164	*U*
4,4'-DDE	0.0033	62	0.0027	*U*	0.0029	*U*	0.00165	*U*	0.00164	*U*
4,4'-DDT	0.0033	47	0.0027	*U*	0.0029	*U*	0.00165	*U*	0.00164	*U*
Aldrin	0.005	0.68	0.0054	*U*	0.0058	*U*	0.00165	*U*	0.00164	*U*
alpha-BHC	0.02	3.4	0.0011	*U*	0.0012	*U*	0.00165	*U*	0.00164	*U*
alpha-Chlordane	0.094	3.4	0.0054	*U*	0.0058	*U*	0.00165	*U*	0.00164	*U*
beta-BHC	0.036	3	0.0011	*U*	0.0012	*U*	0.00165	*U*	0.00164	*U*
delta-BHC	0.04	500	0.0054	*U*	0.0058	*U*	0.00165	*U*	0.00164	*U*
Dieldrin	0.005	1.4	0.0011	*U*	0.0012	*U*	0.00165	*U*	0.00164	*U*
Endosulfan I	2.4	200	0.0054	*U*	0.0058	*U*	0.00165	*U*	0.00164	*U*
Endosulfan II	2.4	200	0.0054	*U*	0.0058	*U*	0.00165	*U*	0.00164	*U*
Endosulfan sulfate	2.4	200	0.0054	*U*	0.0058	*U*	0.00165	*U*	0.00164	*U*
Endrin	0.014	89	0.0054	*U*	0.0058	*U*	0.00165	*U*	0.00164	*U*
gamma-BHC (Lindane)	0.1	9.2	0.0011	*U*	0.0012	*U*	0.00165	*U*	0.00164	*U*
Heptachlor	0.042	15	0.0054	*U*	0.0058	*U*	0.00165	*U*	0.00164	*U*

		Sample ID	**B19**		**B20**		**HA-1**		**HA-2**	
		Sample Date	7/5/2017		7/5/2017		6/8/2017		6/9/2017	
		Sample Depth	4-6 feet bgs		6-8 feet bgs		0-2 feet bgs		0-2 feet bgs	
PCBs, 8082	**UUSCO**	**CUSCO**	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*	*Result*	*Qualifier*
Aroclor 1016	0.1	NA	0.027	*U*	0.029	*U*	0.019	*U*	0.0181	*U*
Aroclor 1221	0.1	NA	0.027	*U*	0.029	*U*	0.019	*U*	0.0181	*U*
Aroclor 1232	0.1	NA	0.027	*U*	0.029	*U*	0.019	*U*	0.0181	*U*
Aroclor 1242	0.1	NA	0.027	*U*	0.029	*U*	0.019	*U*	0.0181	*U*
Aroclor 1248	0.1	NA	0.027	*U*	0.029	*U*	0.019	*U*	0.0181	*U*
Aroclor 1254	0.1	NA	0.027	*U*	0.029	*U*	0.019	*U*	0.0181	*U*
Aroclor 1260	0.1	NA	0.027	*U*	0.029	*U*	0.019	*U*	0.0181	*U*
Aroclor, Total	0.1	1.00	0.027	*U*	0.029	*U*	0.019	*U*	0.0181	*U*

Analyte Detected
Analyte Above UUSCO
Analyte Above CUSCO

Notes: SCOs based on NYSDEC Part 375-6.8 and CP-51 NA = not available
Result Qualifiers: J = approximate E = estimated B = detected in blank D = diluted

Appendix C

QUALITY ASSURANCE PROJECT PLAN

Project:
3-60 Beach 79th Street
Far Rockaway, New York 11693
Borough of Queens

Prepared for:
79 Arverne Development LLC
220-46 73rd Avenue
Bayside, New York

Prepared by:
WCD Group
1350 Broadway, Suite 1904
New York, New York 10018

October 2018

WCD Project No. 17-9838CM

WCD GROUP
A GALLAGHER BASSETT COMPANY

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1.0 PROJECT MANAGEMENT

1.1 Project Organization

The following individuals are major participants in the project.

Mandy Yau **New York State Department of Environmental Conservation (NYSDEC)**
The Project Manager for NYSDEC will be responsible for the review and approval of all project submittals.

Henry Gold **NY Branch Manager/Executive Project Manager, WCD Group**
The Executive Project Manager will be responsible for overview of all project activities, including overall project management and allocation of staff and other resources required to complete the project within the specified schedule and budget. Mr. Gold will oversee the investigation and certify that the investigation was completed in accordance with the RIWP and DER-10.

TJ Motley **Project Manager/Quality Assurance Officer, WCD Group**
The Project Manager will review all project documents and ensure that project plans are followed, manage day-to-day project operations and administrative aspects, and will function as the client and regulatory contact for the project. Mr. Motley has authority to direct the activities of the field team (OSC and drilling subcontractor).

The Quality Assurance Officer will be responsible for reviewing all sampling procedures and certifying that the data was collected and analyzed using the appropriate procedures and will act in conjunction with the Project Manager in the development of the sampling and analytical portion of a site-specific quality assurance project plan (QAPP).

To Be Decided **On-Site Coordinator (OSC) WCD Group**
The OSC will be responsible for the completion of all on-site fieldwork, collection of all samples, completion of the field log, and chains of custody. The OSC will have authority over all on-site subcontractors.

1.2 Principal Data Users

The principal users of the generated data in this project are listed below.

- Residents of Far Rockaway, especially those residing in the vicinity of the Site
- 79 Arverne Development LLC (Owner)
- NYSDEC

1.3 Problem Definition/Project Goals

The purpose of the proposed investigation is to define the nature and extent of contamination at 3-60 Beach 79th Street, Far Rockaway, Queens County, New York (hereafter referred to as the "Site"). It is the intent of this Quality Assurance Project Plan (QAPP) to produce data of sufficient quantity and quality to support the development of an acceptable Remedial Investigation Report (RIR).

1.4 Project/Task Description

The project will meet its objective by the installation of soil borings, permanent groundwater monitoring wells, and temporary soil vapor points at the Site. Soil, groundwater, and soil vapor samples will be

collected and analyzed in accordance with Section 2.3 of the Remedial Investigation Workplan (RIWP), in order to document site conditions. Proposed sampling locations are depicted on the Proposed Remedial Investigation Site Plan in Appendix A.

1.3 Quality Objectives and Criteria

The data collected in this project will be used for the following purposes:

- To identify and locate occurrences of on-site contamination;
- To inform and educate the public about potential impact human health; and,
- To collect baseline data for planning future remedial activity. This objective requires the same data quality and performance criteria as (1) above.

1.4 Documents and Records

Electronic and paper copies of all measurements will be retained by WCD. A copy will also be included in the Remedial Investigation Report (RIR) to be generated at the conclusion of field activities.

2.0 Data Generation and Acquisition

2.1 Sampling Methods

Any non-dedicated sampling equipment will be decontaminated prior to the initiation of fieldwork and before each new sample location. Decontamination procedures will consist of the following steps.

1. Wash all sampling equipment with non-phosphate, laboratory grade detergent and tap water.
2. Triple rinse all equipment with fresh tap water.
3. Rinse with isopropyl alcohol, or if samples are visible contaminated with petroleum use a solvent, such as hexane.
4. Triple rinse with analyte-free water.

Soil samples will be collected in appropriately sized (based on sample volume) laboratory prepared glass jars. Jars will be labeled indicating sample location and depth. Soil samples will be collected using decontaminated stainless steel trowels and/or dedicated, disposable latex gloves. During the sampling procedure, samples will be stored in a cooler prior to transport to the approved laboratory.

Groundwater samples will be collected from each monitoring well using an appropriately decontaminated mechanical pump and/or dedicated tubing. During the sampling procedure, samples will be stored in a cooler prior to transport to the approved laboratory.

Soil-gas samples will be collected in 2.7 Liter SUMMA canister, provided by the laboratory.

All sampling will be completed in the manner outlined in the NYSDEC approved RIWP.

2.2 Sample Handling and Custody

Samples will be handled by the OSC. After each sample is collected, it will be placed in a sample cooler that is maintained at approximately 4°C. For each day of sample collection, sampling personnel will be required to complete a sampling chain-of-custody worksheet indicating all pertinent information about the samples collected, handling methods, name of the collector, and chain of custody. Upon the

completion of each day of sample collection activities, all samples will be shipped via either courier or overnight delivery (per laboratory requirements) to a NYSDOH ELAP approved laboratory. Laboratory personnel will record the cooler temperature (approximately 4°C) upon receipt and analyze the samples prior to the expiration of the following hold times:

VOCs: 14 Days
SVOCs: 14 Days
Metals: 6 Months
PCBs: 14 Days
Pesticides: 14 Days
Suma Canisters: 30 Days

2.3 Analytical Methods and Quality Control

Selected soil samples (as outlined in the RIWP) will be analyzed for the following:

Table 1: Analytical Methods/Quality Assurance Summary Table

Matrix	No. of Samples	Sample Analysis	Analytical Method*	Container (per sample)	Preservative
Soil	28 – 32***	VOC	8260	5-g Encore(3)/ 2 oz glass jar	Methanol/DI Water
Soil	20	SVOCs	8270	8 oz glass jar**	None
Soil	20	TAL Metals	6010 and 7471	8 oz glass jar**	None
Soil	23	Pesticides	8082	8 oz glass jar**	None
Soil	27	PCBs	8081	8 oz glass jar**	None
Groundwater	8	VOCs / 1,4-Dioxane & PFAs	8260 / 527	3-40 ml vials 1-Liter Amber Jar	HCL/ None
Soil Gas/ Ambient Air	6	VOCs	TO-15	2.7 Liter Summa Canister	None

***Unless otherwise specified, all analytical methods conform to USEPA standards.**
****SVOCs, TAL metals, pesticides, and PCBs for soils need 1, 8-ounce glass jar.**
***** Four (4) Contingent VOC samples on 'deep' soil from CVOC delineation (B19) dependent on shallow results.**

One QA/QC sample (per matrix) for every 20 samples (or one per week) will be duplicated by WCD. One in 20 samples will also be submitted for Matrix spike (MS) and Matrix Spike Duplicate (MSD) analysis. One field blank will be prepared for each given piece of non-dedicated sampling equipment for every 20 analytical samples collected using that piece of equipment. For each day of sampling, a trip blank will be included with each sample cooler.

Accuracy and precision will be determined by repeated analysis of laboratory standards, and matrix effects and recovery will be determined through use of spiked samples. With each sample run, standards, blanks, and spiked samples will be run.

2.4 Instrument/Equipment, Testing, Inspection, and Maintenance

Field measurements will be collected using a PID during all sampling. The PID will be stored at WCD offices when not in use. The instrument will be calibrated each day in accordance with the manufacturer's instructions. Instrument malfunction is normally apparent during calibration. In the event of malfunction, equipment will be cleaned and tested. Equipment testing, inspection, and maintenance will be the responsibility of the Quality Assurance manager for the project.

2.5 Inspection/Acceptance of Supplies and Consumables

All supplies and consumables will be inspected and tested (if necessary) by the QA manager upon receipt.

The following supplies and consumables will be used:

- Encore samplers (or equivalent) and/or clear glass jars will be used for each soil sample collected (depending on sample parameters). Duplicate soil samples will each require one additional sample volume. MS/MSD soil samples will each require two additional sample volumes;
- Three 40-ml vials with HCl preservative (for VOCs) will be used for each water sample. Each duplicate water sample will require one additional sample volume. Each MS/MSD water sample will require two additional sample volumes;
- One 2.7-L Summa canister will be used for each soil gas/ambient air sample;
- Disposable gloves (nitrile or equivalent); and
- Distilled water (for decontamination and the preparation of field blanks).

2.6 Data Management

For the purpose of data management, the data can be divided into field and laboratory data. Field data will be recorded at the time of measurement on written field logs.

3.0 Assessment and Oversight

3.1 Reports to Management

The results of the assessments described above will be reported to those on the distribution list after the completion of fieldwork.

4.0 Data Validation and Usability

4.1 Data Review, Verification, and Validation

Data generated by this project will be reviewed, verified and validated as follows:

4.1.1 Field measurements (PID):

If field instruments are determined to be function correctly through calibration and measurements of standards, and if there are no inconsistencies between written records and data recorded in the meters, the data will be assumed to be valid and will be accepted as an indication of field conditions. If instruments malfunction prior to field measurement, they will be restored to proper function prior to use. If instruments malfunction immediately after field measurements are taken, the measurements will be retaken as soon as possible. Inconsistencies between written records and meter data will be resolved as described above. In addition, all field data will be reviewed for consistency and plausibility.

4.1.2 Laboratory Analysis

An NYSDOH ELAP-certified certified laboratory will follow standard procedures regarding data validation and verification.

4.2 Verification and Validation Methods

4.2.1 Verification Method

Once collected, all data will go to the QA manager for review and verification. Review will involve determining that all data has been collected at the proper locations by the proper persons and that all field and laboratory logs are complete. In addition, a Data Usability Summary Report (DUSR) will be prepared by a third, independent party, which maintains NYSDOH ELAP CLP Certification. Data validation will be conducted by an independent validator, if required by the NYSDEC.

4.2.2 Authority for Verification

Authority for verification, validation, and resolution of data issues will be distributed among the investigators. Authority to resolve issues regarding verification of field measurements will rest with the QA manager.

4.2.3 Transmittal to Users

Following review, validation, and verification, all data will be conveyed to users via the Remedial Investigation Report.

4.2.4 Calculations

There are no project specific calculations required.

Appendix A

Proposed Remedial Investigation Site Plan

Appendix B

Groundwater Sampling for Emerging Contaminates Letter (July 2018) – Full PFAS Target Analyte List

Appendix D

HEALTH AND SAFETY PLAN

FOR SITE INVESTIGATION

3-60 Beach 79th Street

Far Rockaway

Borough of Queens, New York

February 1, 2018

WCD File: 17-9838

Environmental & Construction Risk Management

24 Davis Ave., Poughkeepsie, NY 12603 T: 845-452-1658 F: 845-485-7083 wcdgroup.com

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1.0 INTRODUCTION

1.1 Purpose

This Health and Safety Plan for Site Investigation (HASP) has been developed to provide the requirements and general procedures to be followed by WCD Group, LLC (WCD) and on-site subcontractors while performing investigative services at the property located at 3-60 Beach 79th Street, Far Rockaway, Queens, New York.

This HASP incorporates policies, guidelines and procedures that have the objective of protecting the public health of the community during the performance of fieldwork activities, and therefore serves as a Community Health and Safety Plan. The objectives of the HASP are met by establishing guidelines to minimize community exposure to hazards during fieldwork, and by planning for and responding to emergencies affecting the public.

This HASP describes the responsibilities, training requirements, protective equipment and standard operating procedures to be utilized by all personnel while on the Site. All on-site personnel and visitors shall follow the guidelines, rules, and procedures contained in this safety plan. The Project Manager or Site Health and Safety Officer (SHSO) may impose any other procedures or prohibitions believed to be necessary for safe operations. This HASP incorporates by reference the applicable Occupational Safety and Health Administration (OSHA) requirements in 29 CFR 1910 and 29 CFR 1926.

The requirements and guidelines in this HASP are based on a review of available information and evaluation of potential on-site hazards. This HASP will be discussed with Site personnel and will be available on-site for review while work is underway. On-site personnel will report to the Site Health and Safety Officer (SHSO) in matters of health and safety. The on-site project supervisor(s) are responsible for enforcement and implementation of this HASP, which is applicable to all field personnel, including contractors and subcontractors.

This HASP is specifically intended for the conduct of activities within the defined scope of work in specified areas of the Site. Changes in site conditions and future actions that may be conducted at the Site may necessitate the modification of the requirements of the HASP. Although this HASP can be made available to interested persons for informational purposes, WCD has no responsibility over the interpretations or activities of any other persons or entities other than employees of WCD or WCD's subcontractors.

1.2 Site Location and Description

The Site as defined in this HASP is the property located at 3-60 Beach 79th Street, Far Rockaway, Queens, New York. A Proposed Remedial Investigation Site Plan (illustrating the configuration of

the Site as well as the areas of proposed fieldwork activities) is included as an Attachment to this HASP.

The property occupies two adjacent lots (Lots 18 and 20) of Block 16100 on the New York City Tax Map. The Site has an area of approximately 50,050 square feet (sf), and is part of a larger 100,125-sf property bounded by Barbadoes Basin to the north, Beach Channel Drive to the south, a paved parking lot to the east, and Brandreth Creek to the west. The Site (Lots 18 and 20) is occupied by an asphalt parking lot and grass yard used for storage of miscellaneous equipment and material. A small portion of Lot 18 lies beneath the southeastern edge of an industrial/commercial building that covers most of Lot 14. The building on the adjacent property (Lot 14) is a two-story slab-on-grade structure currently occupied by a machine shop and a janitorial supply distributor.

1.3 Work Activities

The property was historically utilized for industrial purposes, including an ice factory, a bicycle manufacturer, and a permitted construction and demolition (C&D) debris transfer station on Lot 20. The available historical information suggests that Lot 18 has remained undeveloped, and for a time was a mapped street. The Site is being investigated in accordance with the requirements of the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). WCD's Remedial Investigation Work Plan (RIWP) proposes an environmental investigation to supplement fieldwork previously conducted at the Site.

Previous environmental investigations documented the presence of fill soils with debris materials, as well as soil and groundwater impacted by volatile and semi-volatile organic compounds, metals, PCBs and pesticides.

Proposed additional environmental investigation consists of the installation of soil borings, permanent monitoring wells and temporary soil vapor points, and collection of soil, groundwater and soil vapor samples.

2.0 HEALTH AND SAFETY HAZARDS

2.1 Hazard Overview for On-Site Personnel

The potential exists for the presence of elevated levels of organic and inorganic compounds in on-site soils and groundwater. The possibility exists for on-site personnel to have contact with contaminated soils and/or groundwater during site remediation work. Contact with contaminated substances may present a skin contact, inhalation and/or ingestion hazard. These potential hazards are addressed in Sections 3.0 through 11.0, below.

2.2 Potential Hazards to the Public from Fieldwork Activities

The potential exists for the public to be exposed to contaminated soils and/or groundwater, which may present a skin contact, inhalation and/or ingestion hazard. Additional potential hazards to the public that are associated with fieldwork activities include mechanical/physical hazards, traffic hazards from fieldwork vehicles, and noise impacts associated with operation of mechanical equipment.

Impacts to public health and safety are expected to be limited to hazards that could directly affect on-site visitors and/or trespassers. These effects will be mitigated through site access and control measures (see Section 6.0, below). Specific actions taken to protect the public health (presented in Sections 3.0 through 11, below) are anticipated to minimize any potential off-site impacts from contaminant migration, noise and traffic hazards.

3.0 PERSONAL PROTECTIVE EQUIPMENT

The levels of protection identified for the services specified in the RIWP represent a best estimate of exposure potential and protective equipment needed for that exposure. Determination of levels was based on data provided by previous studies of the Site and information reviewed on current and past Site usage. The SHSO may recommend revisions to these levels based on an assessment of actual exposures and may at any time require Site workers, supervisors and/or visitors to use specific safety equipment.

The level of protective clothing and equipment selected for this project is Level D. Level D PPE provides minimal skin protection and no respiratory protection, and is used when the atmosphere contains no known hazard, oxygen concentrations are not less than 19.5%, and work activities exclude splashes, immersion or the potential for unexpected inhalation or contact with hazardous levels of chemicals. Workers will wear Level D protective clothing including, but not limited to, a hard hat, steel-toed boots, nitrile gloves (when handling soils and/or groundwater), hearing protection (foam ear plugs or ear muffs, as required), and safety goggles (in areas of exposed groundwater and when decontaminating equipment). Personal protective equipment (PPE) will be worn at all times, as designated by this HASP.

Disposable gloves will be changed immediately following the handling of contaminated soils, water, or equipment. Tyvek suits will be worn during activities likely to excessively expose work clothing to contaminated dust or soil (chemically-resistant over garments will be required in situations where exposures could lead to penetration of clothing and direct dermal contact by contaminants).

The requirement for the use of PPE by official on-site visitors shall be determined by the SHSO, based on the most restrictive PPE requirement for a particular Work Zones (see Section 6 for

Work Zone definitions). All on-site visitors shall, at a minimum, be required to wear an approved hardhat and be provided with appropriate hearing protection as necessary.

The need for an upgrade in PPE will be determined based upon encountered Site conditions, including measurements taken in the breathing zone of the work area using a photo-ionization detector (PID). An upgrade to a higher level of protection (Level C) will begin when specific action levels are reached (see Section 5.0, below), or as otherwise required by the SHSO. Level C PPE includes a full-face or half-mask air-purifying respirator (NIOSH approved for the compound[s] of concern), hooded chemical-resistant clothing, outer and inner chemical-resistant gloves, and (as needed) coveralls, outer boots/boot covers, escape mask, and face shield. Level C PPE may be used only when: oxygen concentrations are not less than 19.5%; contaminant contact will not adversely affect any exposed skin; types of air contaminants have been identified, concentrations measured, and a cartridge or canister is available that can remove the contaminant; atmospheric contaminant concentrations do not exceed immediately dangerous to life or health (IDLH) levels; and job functions do not require self-contained breathing apparatus (SCBAs). The need for Level B or Level A PPE is not anticipated for the planned remedial activities at this Site.

If any equipment fails and/or any employee experiences a failure or other alteration of their protective equipment that may affect its protective ability, that person will immediately leave the work area. The Project Manager and the SHSO will be notified and, after reviewing the situation, determine the effect of the failure on the continuation of on-going operations. If the failure affects the safety of personnel, the work site, or the surrounding environment, personnel will be evacuated until appropriate corrective actions have been taken.

4.0 CONTAMINANT CONTROL

Precautions will be taken during dry weather (e.g., wetting or covering exposed soils) to avoid generating and breathing dust-generated from soils. A PID (or equivalent equipment) will be used to monitor potential contaminant levels. Response to the monitoring will be in accordance with the action levels provided in Section 5.0.

5.0 MONITORING AND ACTION LEVELS

Concentrations of petroleum compounds in the air are expected to be below the OSHA Permissible Exposure Limits (PELs). Air monitoring will be conducted for VOCs and dust according to the NYSDOH Generic Community Air Monitoring Plan (CAMP). Monitoring will be conducted at all times that fieldwork activities which are likely to generate emissions are occurring. PID and dust readings consistently in excess of CAMP limits will be used as an

indication of the need to initiate personnel monitoring, increase worker protective measures, and/or modify or cease on-site operations in order to mitigate off-site community exposure.

PID readings that consistently exceed background in the breathing zone (during any of the proposed tasks) will necessitate moving away from the source or implementing a higher PPE level.

6.0 SITE CONTROL/WORK ZONES

Site control procedures will be established to reduce the possibility of worker/visitor contact with compounds present in the soil, to protect the public in the area surrounding the Site and to limit access to the Site to only those persons required to be in the work zone. Notices will be placed near the Site warning the public not to enter fieldwork areas and directing visitors to report to the Project Manager or SHSO. Measures will be taken to limit the entry of unauthorized personnel into the specific areas of field activity and to safely direct and control all vehicular traffic in and near the Site (e.g., placement of traffic cones and warning tape).

The following Work Zone will be established:

Exclusion Zone ("Hot Zone") - The exclusion zone will be that area immediately surrounding the work being performed for investigation and/or remediation purposes (i.e. the area where contaminated media are being handled). It is anticipated that most of the work will be accomplished with heavy equipment in the exclusion zone. Only individuals with appropriate PPE and training are allowed into this zone. It is the responsibility of the Site Health and Safety Officer to prevent unauthorized personnel from entering the exclusion zone. When necessary, such as in high traffic areas, the exclusion zone will be delineated with barricade tape, cones and/or barricades.

Decontamination Area - A decontamination area for personnel and equipment is not anticipated being required during completion of the fieldwork; however, care will be taken to remove gloves, excess soil from boots, and soiled clothing (if necessary) before entering the Intermediate Zone.

Contamination Reduction Zone and Support Zone - Not anticipated being required during the completion of the fieldwork.

Intermediate Zone (Decontamination Zone) - The intermediate zone, also known as the decontamination zone, is where patient decontamination should take place, if necessary. A degree of contamination still is found in this zone; thus, some PPE is required, although it is usually of a lesser degree than that required for the hot zone.

Command Zone - The command zone is located outside the decontamination zone. All exposed individuals and equipment from the "hot zone" and decontamination zone should be decontaminated before entering the command zone. Access to all zones must be controlled. Keeping the media and onlookers well away from the Site is critical and will be the responsibility of both the SSHO and the Project Manager, and other Site personnel as appropriate.

7.0 NOISE CONTROL

All fieldwork activities will be conducted in a manner designed to reduce unnecessary noise generation, and to minimize the potential for both on-site and off-site harmful noise levels. The Project Manager and SHSO will establish noise reduction procedures (as appropriate to the Site and the work) to meet these requirements.

8.0 PERSONNEL TRAINING

Work zones that will accomplish the general objective stated above will be established by the Project Manager and the SHSO. Site access will be monitored by the SHSO, who will maintain a log-in sheet for personnel that will include, at the minimum, personnel on the Site, their arrival and departure times and their destination on the Site. All workers will be properly trained in accordance with OSHA requirements (29 CFR 1910). Personnel exiting the work zone(s) will be decontaminated prior to exiting the Site. Site-specific training will be provided to each employee. Personnel will be briefed by the SHSO as to the potential hazards to be encountered, including:

- Availability of this HASP;
- General site hazards and specific hazards in the work areas, including those attributable to known of suspect on-site contaminants;
- Selection, use, testing, and care of the body, eye, hand, and foot protection being worn, with the limitations of each;
- Decontamination procedures for personnel, their personal protective equipment, and other equipment used on the Site;
- Emergency response procedures and requirements;
- Emergency alarm systems and other forms of notification, and evacuation routes to be followed; and,
- Methods to obtain emergency assistance and medical attention.

9.0 DECONTAMINATION

The SHSO will establish a decontamination system and decontamination procedures (appropriate to the Site and the work) that will prevent potentially hazardous materials from leaving the Site. Trucks will be brushed to remove materials adhering to their surfaces. Sampling equipment will be segregated and, after decontamination, stored separately from splash protection equipment. Decontaminated or clean sampling equipment not in use will be covered with plastic and stored in a designated storage area in the work zone.

10.0 EMERGENCY RESPONSE

10.1 Notification of Site Emergencies

In the event of an emergency, the SHSO will be immediately notified of the nature and extent of the emergency (the names and contact information for key site safety and management personnel, as well as other site safety contact telephone numbers, shall be posted at the Site).

Table 1 in this HASP contains Emergency Response Telephone Numbers, and immediately following is a map detailing the directions to the nearest hospital emergency room. This information will be maintained at the work Site by the SHSO. The location of the nearest telephone will be determined prior to the initiation of on-site activities. In addition to any permanent phone lines, a cellular phone will be in the possession of the SHSO, or an authorized designee, at all times.

10.2 Responsibilities

Prior to the initiation of on-site work activities, the SHSO will:

- Notify individuals, authorities and/or health care facilities of the potentially hazardous activities and potential wastes that may develop as a result of the remedial activities.
- Confirm that first aid supplies and a fire extinguisher are available on-site.
- Have a working knowledge of available safety equipment.
- Confirm that a map detailing the most direct route to the hospital is prominently posted with the emergency telephone numbers.

The SHSO will be responsible for directing notification, response and follow-up actions and for contacting outside response personnel (ambulance, fire department, or others). In the case of an evacuation, the SHSO will account for personnel. A log of individuals entering and leaving the Site will be kept so that everyone can be accounted for in an emergency.

Upon notification of an exposure incident, the SHSO will contact the appropriate emergency response personnel for recommended medical diagnosis and, if necessary, treatment. The SHSO

will determine whether and at what levels exposure actually occurred, the cause of such exposure, and the means to prevent similar incidents from occurring.

10.3 Accidents and Injuries

In the event of an accident or injury, measures will be taken to assist those who have been injured or exposed and to protect others from hazards. If an individual is transported to a hospital or doctor, a copy of the HASP will accompany the individual.

The SHSO will be notified and will respond according to the severity of the incident. The SHSO will perform an investigation of the incident and prepare a signed and dated report documenting the investigation. An exposure-incident report will also be completed by the SHSO and the exposed individual. The form will be filed with the employee's medical and safety records to serve as documentation of the incident and the actions taken.

10.4 Communication

No special hand signals will be utilized within the work zone. Field personnel will utilize standard hand signals during the operation of heavy equipment.

10.5 Safe Refuge

Vehicles and on-site structures will serve as the immediate place of refuge in the event of an emergency. If evacuation from the area is necessary, project vehicles will be used to transport on-site personnel to safety.

10.6 Site Security and Control

Site security and control during emergencies, accidents and incidents will be monitored by the SHSO. The SHSO is responsible for limiting access to the Site to authorized personnel and for oversight of reaction activities.

10.7 Emergency Evacuation

In case of an emergency, personnel will evacuate to the safe refuge identified by the SHSO, both for their personal safety and to prevent the hampering of response/rescue efforts.

10.8 Resuming Work

A determination that it is safe to return to work will be made by the SHSO and/or any personnel assisting in the emergency, e.g., fire department, police department, utility company, etc. No personnel will be allowed to return to the work areas until a full determination has been made by the above-identified personnel that all field activities can continue unobstructed. Such a determination will depend upon the nature of the emergency (e.g., downed power lines -- removal of all lines from the property; fire -- extinguished fire; injury -- safe transport of the

injured party to a medical facility with either assurance of acceptable medical care present or completion of medical care; etc.). Before on-site work is resumed following an emergency, necessary emergency equipment will be recharged, refilled or replaced. Government agencies will be notified as appropriate. An Incident Report Form will be filed.

10.9 Fire Fighting Procedures

A fire extinguisher will be available in the work zone during on-site activities. This extinguisher is intended for small fires. When a fire cannot be controlled with the extinguisher, the area will be evacuated immediately. The SHSO will be responsible for directing notification, response and follow-up actions and for contacting ambulance and fire department personnel.

10.10 Emergency Decontamination Procedure

The extent of emergency decontamination depends on the severity of the injury or illness and the nature of the contamination. Whenever possible, minimum decontamination will consist of washing, rinsing and/or removal of contaminated outer clothing and equipment. If time does not permit decontamination, the person will be given first aid treatment and then wrapped in plastic or a blanket prior to transport.

10.11 Emergency Equipment

The following on-site equipment for safety and emergency response will be maintained in the on-site vehicle of the SHSO:

- Fire extinguisher;
- First-aid kit; and,
- Extra copy of this Health and Safety Plan.

11.0 SPECIAL PRECAUTIONS AND PROCEDURES

The activities associated with this remediation may involve potential risks of exposure to both chemical and physical hazards. The potential for chemical exposure to hazardous or regulated substances will be significantly reduced through the use of monitoring, personal protective clothing, engineering controls, and implementation of safe work practices.

11.1 Heat/Cold Stress

Training in prevention of heat/cold stress will be provided as part of the site-specific training. The timing of this project is such that heat/cold stress may pose a threat to the health and safety of personnel. Work/rest regimens will be employed, as necessary, so that personnel do not suffer adverse effects from heat/cold stress. Special clothing and appropriate diet and fluid intake regimens will be recommended to personnel to further reduce this temperature-related

hazard. Rest periods will be recommended in the event of high/low temperatures and/or humidity to counter the negative effects of heat/cold stress.

11.2 Heavy Equipment

Working in the vicinity of heavy equipment is the primary safety hazard at the Site. Physical hazards in working near heavy construction equipment include the following: overhead hazards, slips/trip/falls, hand and foot injuries, moving part hazards, improper lifting/back injuries and noise. All workers will be properly trained in accordance with OSHA requirements (29 CFR 1910). No workers will be permitted within any excavated areas without proper personal protective equipment (PPE), including, as warranted, any necessary Level C equipment (e.g., respirators and protective suits). Air monitoring in excavation areas will be conducted for VOCs in accordance with Section 5.0.

11.3 Additional Safety Practices

The following are important safety precautions which will be enforced during fieldwork activities:

- Medicine and alcohol can aggravate the effect of exposure to certain compounds. Controlled substances and alcoholic beverages will not be consumed during remedial activities. Consumption of prescribed drugs will only be at the discretion of a physician familiar with the person's work.
- Eating, drinking, chewing gum or tobacco, smoking, or other practices that increase the probability of hand-to-mouth transfer and ingestion of material is prohibited except in areas designated by the SHSO.
- Contact with potentially contaminated surfaces will be avoided whenever possible. Workers will not unnecessarily walk through puddles, mud or other discolored surfaces; kneel on the ground; or lean, sit, or place equipment on drums, containers, vehicles, or the ground.
- Personnel and equipment in the work areas will be minimized, consistent with effective site operations.
- Unsafe, unattended equipment will be tagged: "DANGER, DO NOT OPERATE".
- Work areas for various operational activities will be established.

11.4 Daily Log Contents

The SHSO will establish a system appropriate to the Site, the work and the work zones that will record, at a minimum, the following information:

- Personnel on the Site, their arrival and departure times and their destination on the Site.
- Incidents and unusual activities that occur on the Site such as, but not limited to, accidents, spills, breaches of security, injuries, equipment failures and weather-related problems.
- Changes to the HASP.
- Daily information generated such as: changes to work and health and safety plans; work accomplished and the current Site status; and monitoring results.

12.0 TABLE AND FIGURES

Table 1 - Emergency Contact Information

Emergency Agencies	Phone Numbers
EMERGENCY	911
St. John's Episcopal Hospital 327 Beach 19th St, Far Rockaway	(718) 869-7000
Police Department 222 Beach 116th St, Rockaway Park (2.1 Miles)	(718) 474-6554 or 911
Far Rockaway Fire Department	911
Site Health and Safety Officer, Henry Gold, WCD	(212) 631-9000

Figure 1 - Directions to Hospital

(approximate travel time: 16 minutes)

3-60 Beach 79th Street to St. John's Episcopal Hospital

Head South on Beach 79th St toward Beach Channel Dr/Rockaway Fwy (217 ft)

Follow Beach Channel Dr and Rockaway Fwy to Far Rockaway Blvd (2.6 mi)

Turn **left** at the 1st cross street onto Beach Channel Dr/Rockaway Fwy (0.8 mi)

Turn **right** onto Arverne Blvd (0.1 mi)

Turn **right** onto Beach 59th St (194 ft)

Turn **left** onto Rockaway Fwy (1.7 mi)

Take New Haven Ave to Beach 20th St (0.4 mi)

Turn **right** onto Far Rockaway Blvd (0.1 mi)

Turn **right** onto Ocean Crest Blvd (472 ft)

Turn **left** onto Grassmere Terrace (180 ft)

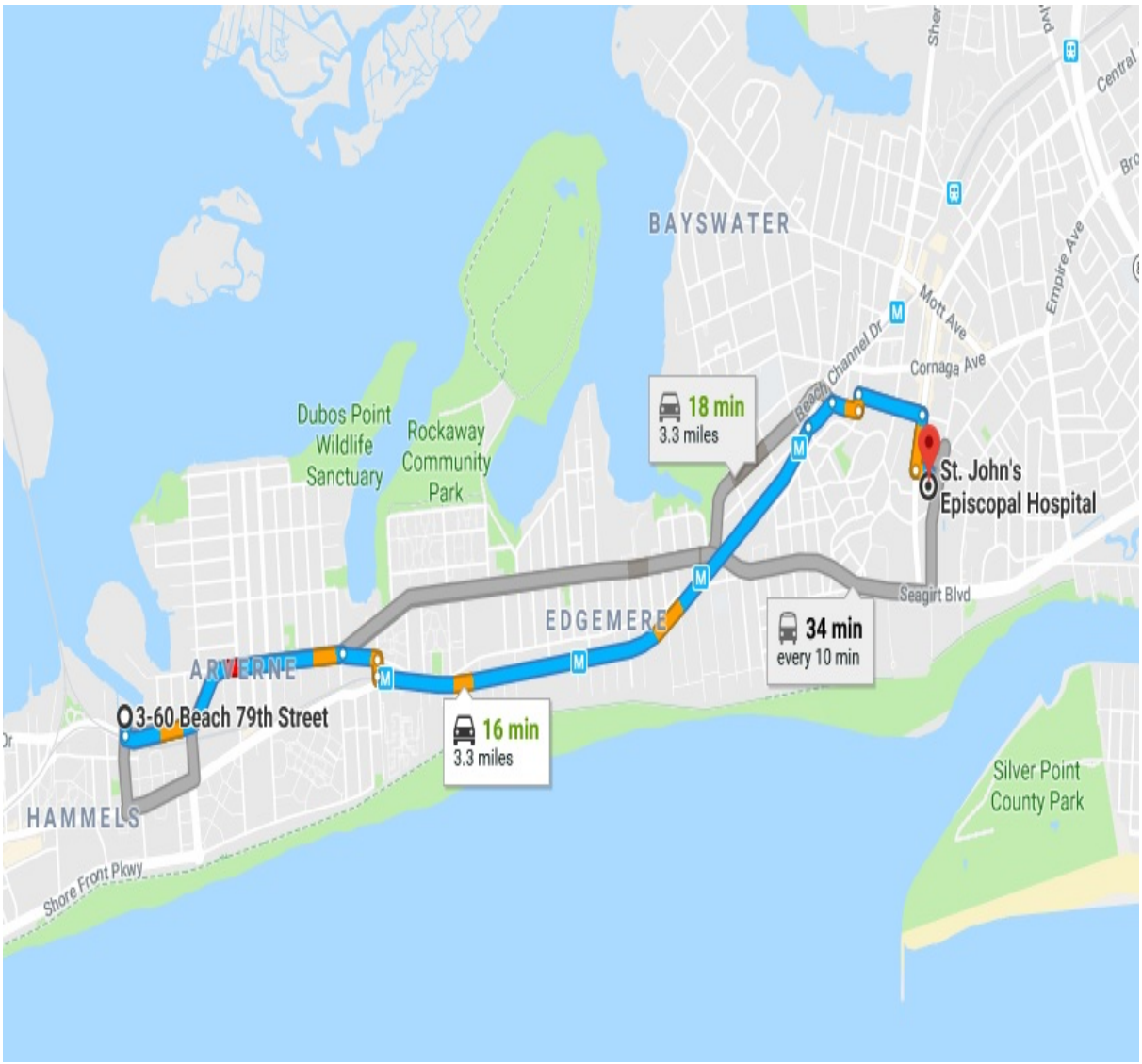
Turn **right** onto New Haven Ave (0.2 mi)

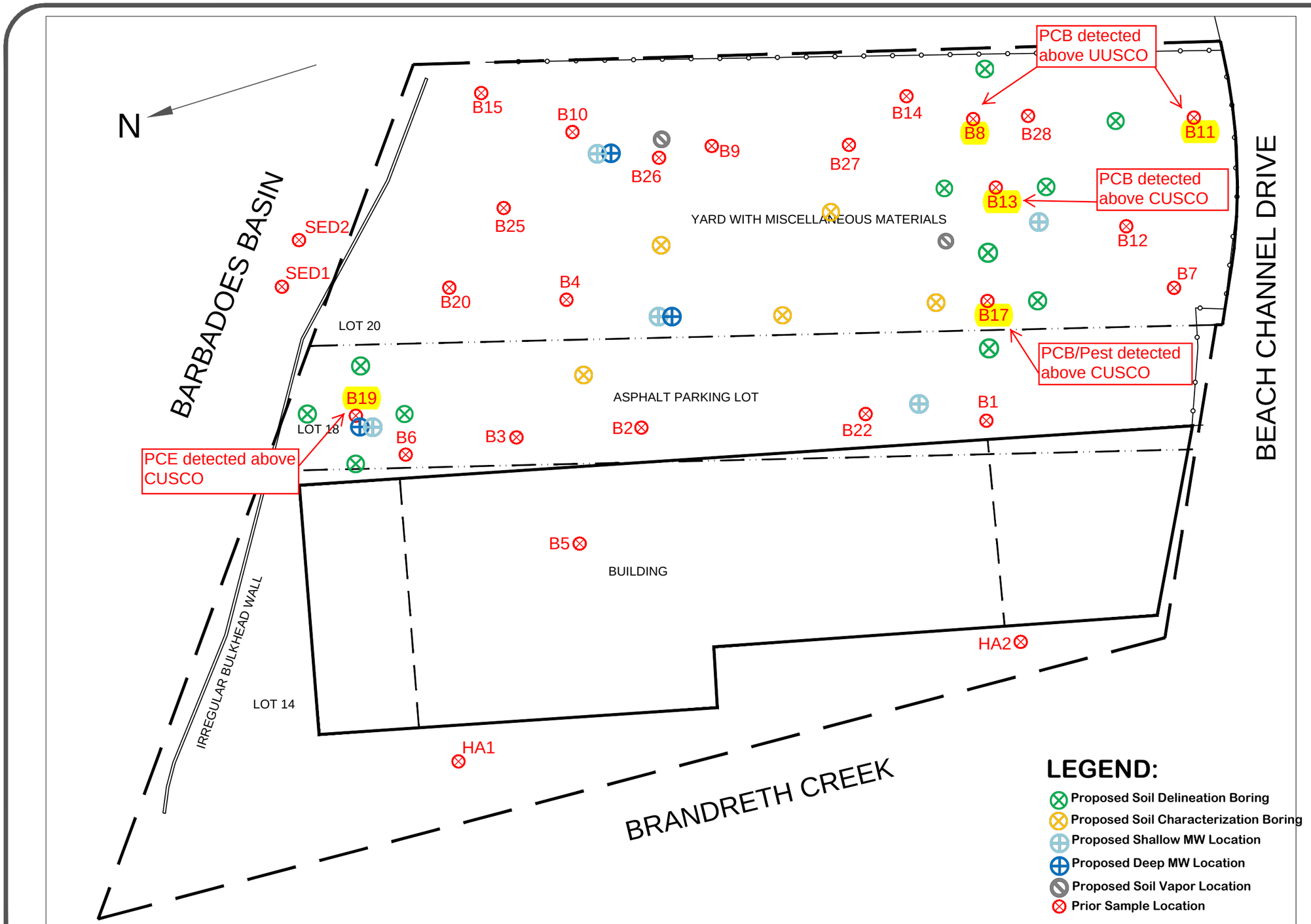
Turn right at the 2nd cross street onto Beach 20th St (0.1 mi)

Turn **left** (236 ft)

Hospital is on the **right**.

Figure 2 - Map to Hospital (overview)





WCD GROUP
For pivotal matters.
Environmental Construction Management
WCD Group LLC
1350 Broadway, Suite 1904
New York, NY 10018-0891
Phone: (212) 631-9000
Fax: (212) 631-8066
www.wcdgroup.com

CLIENT:

79 Averne Development LLC

No.	Revision/Issue	Date
2	RI Sample Locs	2/1
1	Add Sampling Locations	11/8

PROJECT NAME AND ADDRESS

3-60 Beach 79th Street
Far Rockaway,
Borough of Queens,
New York, NY

DRAWING TITLE

Proposed Remedial Investigation Site Plan

DRAWN BY: B. Zamorski

REVIEWED BY: H. Gold

Project	Drawing Name
17-9838	
Date: 6/21/17	
Scale: AS SHOWN	Sheet No. Fig 2