ENCLAVE ON 241ST STREET DEVELOPMENT
BRONX COUNTY
NEW YORK, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C203077

Prepared for:
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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date
1	9/17/2024	DOH comments provided on August 9, 2024	10/09/2024
2	04/02/2025	Revised Environmental Easement CRFN	

APRIL 2025

CERTIFICATION STATEMENT

I GARY ROZMUS certify that I am currently a NYS registered professional engineer and that this Site Management 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) and Green Remediation (DER-31).

Gary A. Rozmus ____ P.E.

APRIL 02, 2025 ____ DATE

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NEW YORK, NEW YORK

SITE MANAGEMENT PLAN

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LIST OF ACRONYMS

AST	Aboveground Storage Tank
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	below grade surface
CAMP	Community Air Monitoring Plan
COC	Certificate of Completion
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
EBC	Environmental Business Consultants
ECL	Environmental Conservation Law
ESI	Environmental Site Investigation
EWP	Excavation Work Plan
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYCDOB	New York City Department of Buildings
NYSDEC	New York State Department of Environmental Conservation
O&M	Operation and Maintenance
P.E. or PE	Professional Engineer
PID	Photoionization Detector
PRR	Periodic Review Report
Ppm	parts per million
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCA	Recycled Concrete Aggregate
REC	Recognized Environmental Conditions
RI	Remedial Investigation
RP	Remedial Party
RSO	Remedial System Optimization
SVOC	Semi-Volatile Organic Compound
SMP	Site Management Plan
SCG	Standards, Criteria and Guidance
SSD	Sub-slab Depressurization
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
UST	Underground Storage Tank
VOC	Volatile Organic Compound

ES EXECUTIVE SUMMARY

The following provides a brief summary of the controls implemented for the Enclave on 241st Street Development site (the Site), as well as the inspections, monitoring, maintenance and reporting activities required by this Site Management Plan (SMP):

Site Identification: NYSDEC BCP Site No. C203077
Enclave on 241st Street Development
714 241st Street, Bronx, New York

Institutional Controls:	1. Require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3).
	2. Allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws.
	3. Restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH.
	4. Require compliance with the Department approved SMP.
Engineering Controls:	1. Cap and Cover system
	2. Subgrade Parking Garage Ventilation System
	3. Monitoring Wells associated with Monitored Natural Attenuation

Inspections:	Frequency
1. Cap and Cover	Annually
2. Subgrade Parking Garage Ventilation System	Annually

Site Identification: NYSDEC BCP Site No. C203077
Enclave on 241st Street Development
714 241st Street, Bronx, New York

Monitoring:	
1. Groundwater Monitoring wells	Quarterly
Reporting	
1. Periodic Review Report	Annually

Further descriptions of the above requirements are provided in detail in the latter sections of this SMP.

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Enclave on 241st Street Development site, located at 714 East 241st Street, Bronx, New York (the Site) (see Fig. 1). The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C203077, which is administered by New York State Department of Environmental Conservation (NYSDEC).

Enclave on 241st Street Development entered into a Brownfield Cleanup Agreement (BCA), on March 31, 2016, with the NYSDEC to remediate the Site and Enclave 241 L.P took over the Site in May 2023. A figure showing the Site location and boundaries is provided in Fig. 2. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement provided in Appendix A.

After completion of the remedial work, some contamination will be left at the Site, which is hereafter referred to as "remaining contamination". Institutional and Engineering Controls (ICs and ECs) have been incorporated into the Site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, requires compliance with this SMP and all ECs and ICs placed on the Site. The environmental easement for the Site was recorded in the Office of the City Register of the City of New York (City Register File No. 2025000049710). A copy of the easement and proof of filing are included in Appendix A.

This SMP was prepared to manage remaining contamination at the Site until the Environmental Easement is extinguished in accordance with ECL Article 71, Title 36. This plan has been approved by the NYSDEC, and compliance with this plan is required by the grantor of the Environmental Easement and the grantor's successors and assigns. This SMP may only be revised with the approval of the NYSDEC.

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC).

- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 NYCRR Part 375 and the BCA (Index # 203077-03-15; Site # C203077) for the site, and thereby subject to applicable penalties.

All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in NYS. A list of contacts for persons involved with the Site is provided in Appendix B of this SMP.

This SMP was prepared by GEI Consultants Engineering, Geology, Architecture & Landscape Architecture (GEI), on behalf of Enclave 241 L.P, in accordance with the requirements of the NYSDEC's Division of Environmental Remediation (DER)-10 ("Technical Guidance for Site Investigation and Remediation"), dated issued on May 3, 2010, and most recently updated on April 9, 2019, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs and/or ECs that are required by the Environmental Easement for the Site.

1.2 Revisions and Alterations

Revisions and alterations to this plan will be proposed in writing to the NYSDEC's project manager. The NYSDEC can also make changes to the SMP or request revisions from the remedial party. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shutdown of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the Site conditions. All approved alterations must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations. For example, any changes to as-built drawings must be stamped by a NYS Professional Engineer (PE). In accordance with the Environmental Easement for the Site, the NYSDEC project manager will provide a notice of any approved changes to the SMP and append these notices to the SMP that is retained in its files.

1.3 Notifications

Notifications will be submitted by the property owner to the NYSDEC, as needed, in accordance with NYSDEC's DER – 10 for the following reasons:

1. 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6 NYCRR Part 375 and/or Environmental Conservation Law.

2. 7-day advance notice of any field activity associated with the remedial program.

3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan (EWP). If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.

4. Notice within 48 hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.

5. Notice within 48 hours of any non-routine maintenance activities.

6. Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

Any change in the ownership of the Site or the responsibility for implementing this SMP will include the following notifications:

1. At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the BCA and all approved work plans and reports, including this SMP.

2. Within 15 days after the transfer of all or part of the Site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 below includes contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Appendix B.

Table 1. Notifications*

Name	**Contact Information**	**Required Notification****
NYSDEC Project Manager: Patrick Powers	518.402.9758 patrick.powers@dec.ny.gov	All Notifications
NYSDEC Project Manager's Supervisor Douglas MacNeal	518.402.9662 douglas.macneal@dec.ny.gov	All Notifications
NYSDEC Site Control: Kelly Lewandowski	518.402.9553 kelly.lewandowski@dec.ny.gov	Notifications 1 and 8
NYSDOH Project Manager Steven Berninger	518.402.7860 Steven.berninger@health.ny.gov	Notifications 4, 6, and 7

* Note: Notifications are subject to change and will be updated as necessary.

** Note: Numbers in this column reference the numbered bullets in the notification list in this section.

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in the Bronx, New York City, New York and is identified as Block 5087 and Lot 1 on the New York City Tax Map (see Fig. 2). It should be noted former Lot 12 is not included in the Enclave on 241st Street Development NYSDEC BCP Site, but is included in the redeveloped Lot 1 and included in the limits of the Site.

The Site consists of an approximate 24,060-square-foot irregularly shaped lot and includes approximately 100 feet of frontage along White Plains Road, 185 feet of frontage along 241st Street, and 135 feet of frontage along Furman Avenue. The New York City Transit Authority (NYCTA) #2 rail corridor and elevated station platform are located above grade along the northwestern property line. A new 11-story mixed use building is currently under construction at the Site.

The Site is bordered to the northwest by White Plains Road and an overhead NYCTA rail line, to the northeast by East 241st Street, to the southeast by Furman Avenue, and to the southwest by residential and commercial properties. The boundaries of the Site are more fully described in Appendix A – Environmental Easement. The owner of the Site at the time of issuance of this SMP is Enclave 241 L.P.

2.2 Physical Setting

2.2.1 Land Use

The Site consists of the following: a partially constructed new 11-story residential building. The Site is zoned C2-4/R7D (mixed commercial and residential) and is currently undergoing redevelopment for mixed commercial and residential use.

The properties adjoining and surrounding the Site primarily include commercial and residential properties. The properties immediately north, south, east, and west of the Site include commercial and residential properties.

2.2.2 Geology

The subsurface conditions consist of historic fill soils and glacial outwash sand and silt deposits overlying weathered bedrock.

A fill layer consisting of soils mixed with construction debris was identified throughout the Site during the Remedial Investigation (RI), extending to depths of between approximately 6 to 15-feet below grade surface (bgs). Native soils, consisting of sand and silt with varying percentages of gravel and occasional cobbles and boulders, were present beneath the fill layer. During remedial excavation along the southern portion of the Site, weathered bedrock was encountered at approximately 8-feet bgs.

Site specific boring logs from the previous RI completed by Langan in 2015 are provided in Appendix C.

2.2.3 Hydrogeology

Depth to groundwater at the Site ranges from 9.47-feet to 13.43-feet bgs and flows to the south.

A groundwater contour map developed in November 2015 by Langan as a part of the RIR is shown in Fig. 3. Additionally, historical groundwater elevation data from the RIR prepared by Langan is provided in Table 2.

2.3 Investigation and Remedial History

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 – References.

- Phase I ESA Report, 700 East 241st Street (former lot 62), Giorgio Engineering International, P.C., February 12, 2008.
- Phase II Subsurface Investigation Report, Environmental Business Consultants (EBC).
- Phase I ESA Report, Langan, January 9, 2015.
- Phase II Environmental Site Investigation (ESI), Langan, February 3, 2015.

- Remedial Investigation Report, Langan, April, 2016.
- Underground storage tank (UST) Removal Completion Report, Langan, December 20, 2019.
- In-Situ Chemical Oxidation Injection Summary Report, Langan, December 9, 2021.
- Waste Characterization Report, Langan, May 15, 2022.
- Post ISCO Injections GW Summary Report, Langan December 2022.

2.3.1 Phase I ESA Report, 700 East 241st Street (former Lot 62), Giorgio Engineering International, P.C., February 12, 2008

The Phase I ESA prepared by Giorgio Engineering International, P.C only pertains to the former lot 62 of the Site. This Phase I identified the following Recognized Environmental Conditions (RECs):

- **Presence of a 55-Gallon Drum of Waste on the Site:** During the Site inspection, a 55-gallon drum of waste was observed on the west side of the property. The disposition of this drum is unknown.
- **Lack of Waste Oil Manifest:** During the Site inspection conducted by Giorgio Engineering International, P.C, waste oil was observed on-site; however, disposal manifests were not provided on-site. The disposition of this waste oil is unknown.

2.3.2 Phase II Subsurface Investigation Report, EBC, January 31, 2013

The Phase II report prepared by EBC pertains to former Lots 1, 3, 6, 62, and p/o 65. The Phase II investigation was implemented on January 15, 2013, and included completion of a geophysical survey, installation of nine soil borings (B1 through B9) and six temporary groundwater monitoring wells (GW1, GW3 through GW6, and GW9), and collection of ten grab soil samples and six groundwater samples. The soil and groundwater samples were analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs). Soil analytical data was compared to the Unrestricted and Restricted- Residential SCOs and groundwater analytical data was compared to NYSDEC Ambient Water Quality Standards (AWQS) for Class GA groundwater.

The findings of this investigation are summarized below:

- The subsurface soil profile generally consists of a historic fill layer made up of brown silty-sand with brick between 4 to 8 feet bgs underlain by native brown silty-sand or sand. Bedrock was not encountered at any boring location at a maximum depth of 20 feet bgs.

- Groundwater was encountered at depths of approximately 10 to 12 feet bgs.

- The geophysical survey identified the two functioning USTs in the northern portion of the Site as well as a potential UST (suspected to be closed-in-place) located in the northwest portion of the Site.

- **Soil Impacts:** The following constituents were detected in soil at concentrations that exceed their respective Unrestricted Use SCOs:

    - Nine VOCs, including acetone, benzene, ethylbenzene, methyl t-butyl ethere (MTBE), n-propylbenzene, o-xylene/total xylene, toluene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
    - One SVOC, naphthalene.

- **Groundwater Impacts:** The following constituents were detected in groundwater at concentrations exceeding TOGS AWQS.

    - Fifteen VOCs, including benzene, ethylbenzene, isopropylbenzene, m&pxylenes, MTBE, naphthalene, n-butylbenzene, n-propylbenzene, o-xylene, pisopropyltoluene, sec-butylbenzene, toluene, 1,2,4-trimethylbenzene, and 1,2- dibromoethane.

- Groundwater analytical results confirmed the presence of a petroleum release and Spill Case No. 12-14956 was opened by NYSDEC on January 25, 2013.

2.3.3. Phase I ESA Report, Langan, January 9, 2015

The Phase I identified the following as RECs:

- **Historical Site Use:** Portions of the Site were used for auto repair and gasoline fueling purposes since at least 1935. Evidence of former auto repair equipment (automobile gas tanks, miscellaneous car parts, unlabeled 55-gallon drums, etc.) was apparent throughout the Site. Releases of chemicals used during historical operations may have adversely impacted soil, groundwater, building components and/or soil vapor.

- Discoloration, staining, and stressed vegetation were also apparent throughout the Site (primarily Lots 6, 59, 62, and p/o 65). The concrete slabs of the buildings were compromised in several areas.

- **On-Site Petroleum Bulk Storage:** The following evidence of historical petroleum bulk storage was identified:

  - One 4,000-gallon gasoline UST (temporarily closed in-place), one 2,000-gallon gasoline UST (temporarily closed in-place), one 550-gallon gasoline UST (closed in-place), and one 550-gallon gasoline UST (closed-removed) had been present on Lot 62 since at least 1935.
  - According to historical Sanborn Fire Insurance Maps and New York City Department of Buildings (NYCDOB) records, a gasoline service station historically occupied lot 59. Additionally, a 1965 Certificate of Occupancy indicates that a fire department gasoline tank installation was approved on the lot. Releases from the suspect tanks may have impacted soil, groundwater, and soil vapor.
  - During the Phase I ESA site reconnaissance, a 275-gallon heating oil AST was observed in the basement of Lot 1. The AST was observed to be in good condition with no staining or visual impacts to the floor below the AST; however, a brick-lined floor sump with a dirt base was observed below the AST. Because the floor sump provides a conduit for spilled heating oil to impact subsurface conditions, the heating oil AST and floor sump constitutes a REC.

- **NYSDEC Spill No. 1214956:** On January 25, 2013, during a Phase II subsurface investigation, the NYSDEC issued Spill Number 1214956 to Lot 62 when elevated concentrations of petroleum VOCs were identified in soil and groundwater in the vicinity of the gasoline USTs located in Lot 62. This spill case is currently open.

- **Current and Historical Use of Surrounding Properties:** Current and historical uses of surrounding properties include:

  - Four drycleaners (4811 White Plains Road, 4701 White Plains Road, 4706 White Plains Road, and 4707 White Plains) with years of operation ranging from 1949 to present. Each of the four drycleaners are located upgradient of the Site.
  - Nine auto repair facilities (730 East 241st Street, 740 East 241st Street, 750 East 241st Street, 712 East 240th Street, 4580 White Plains Road, 4642 White Plains Road, 4609 Furman Avenue, 4619 Furman Avenue, and 4640 Furman Avenue) with years of operation ranging from 1935 to 2007. The auto repair facilities are located cross-gradient and downgradient of the Site.
  - Two gasoline filling stations (740 East 241st Street and 750 East 241st Street) with years of operation ranging from 1935 to 1993. The former filling stations are located cross-gradient of the Site.
  - New York City Transit System Rail Yard (located approximately 150 feet southeast and cross-gradient of the Site) with years of operation ranging from 1918 to 2007.

Potential petroleum and solvent releases associated with the historical and current surrounding property uses may have adversely impacted groundwater and/or soil vapor at the Site and is considered a REC.

2.3.4 Phase II ESI, Langan, February 3, 2015

This investigation included a geophysical survey and soil and groundwater sampling in areas not previously investigated. Soil analytical data was compared to Unrestricted Use SCOs and Restricted-Residential Use SCOs and groundwater analytical data was compared to AWQS. Based on the observations and results of this investigation, Langan concluded the following:

- A layer of historic fill composed of varying amounts of sand and gravel, and fragments of brick, glass, wood, and coal ash was identified throughout the Site, with thicknesses ranging from approximately 4 to 8 feet. This fill layer contained Restricted-Residential SCO exceedances of SVOCs and metals throughout the Site.

- One soil boring was installed next to the suspected UST along White Plains Road that was discovered during the geophysical survey. Petroleum-like odors and photoionization detector (PID) readings (up to 1,095 part per million [ppm]) were observed in the soil boring at depths of approximately 10 to 16 feet bgs. Groundwater analytical sampling results from this location confirmed the presence of petroleum contamination.

- The approximate depth to groundwater is estimated at 9 to 11 feet bgs. LNAPL was not identified during this Limited Phase II ESI; however, a petroleum-like odor was detected during groundwater purging and sampling activities. Groundwater analytical sampling results confirmed the presence of petroleum contamination.

2.3.5 Remedial Investigation Report, Langan, April 2016

A RI was conducted by Langan between September and October of 2015. The following was reported:

An approximate 1 ¾ inch thick layer of LNAPL was measured during the RI in monitoring well MW29. PID readings from the headspace of MW29 were observed to be 0.0 ppm, indicating the LNAPL was most likely degraded. A petroleum identification analysis performed on the LNAPL reported the petroleum pattern resembled weathered fuel oil No. 2 or diesel fuel, confirming the LNAPL was degraded. The source of the LNAPL is likely a historic petroleum release from the on-site USTs.

Groundwater exceedances of the 6NYCRR Part 703.5 AWQS included VOCs, SVOCs and metals. The SVOC exceedances were limited to two monitoring wells, were minor in nature, and are not considered Contaminants of Concern. The metal detections and exceedances in groundwater are most likely naturally occurring or related to road salt application and are not contaminants of concern for this Site.

Soil vapor sampling results indicate concentrations of VOCs exceeding the NYSDOH AGVs for methylene chloride, TCE, and PCE were detected in the soil vapor samples collected. Based on analytical results, the source of petroleum-related VOCs in soil vapor is primarily due to historic releases of petroleum due at the Site. Because chlorinated VOCs were not detected in Site soil and groundwater, the identified chlorinated soil vapor contamination is likely attributed to the up gradient and off-site drycleaner, or from a source under an adjacent building.

2.3.6 UST Removal Completion Report, Langan, December 20, 2019

Brookside, a New York City Fire Department (FDNY)-licensed contractor, decommissioned and removed the USTs in accordance with New York City Fire Code, Chapter 34, Section FC3404, Title 6 of the New York Codes Rules and Regulations (NYCRR), Section 613.9, and NYSDEC DER-10 Technical Guidance for Site Investigation and Remediation Section 5.5.

Brookside, under Langan observation, began tank removal activities on August 28, 2018. Removal activities for the following historical tanks are described below:

- One 550-gallon UST (Tank #1).
- One 4,000-gallon UST (Tank #3), which was previously closed-in-place.
- One 2,000-gallon UST (Tank #4), which was previously closed-in-place.

Approximately 150 cubic yards of soil were generated during the UST removals activities. Prior to offsite disposal, the stockpiled soil was characterized by Langan through sampling and laboratory analysis. A Soil Characterization Report was prepared by Langan to document the sampling methodology, field observations, and laboratory analytical results. Pursuant to sampling requirements of the selected disposal facility, Clean Earth of Carteret (CEC) of Carteret, New Jersey, three 5-point composite samples and one 8-point composite sample were collected as part of the soil characterization sampling. A total of 184.35 tons of soil was transported off site for disposal at CEC.

In order to maintain appropriate inclination/support along the sides of the UST excavation (550-gallon UST) , Brookside needed to use spoils from the excavation to slope and compact the southern, western, and northern sides sidewalls of the excavation. Therefore, Langan was not able to collect representative endpoint samples at these locations. However, Langan was able to collect endpoint samples along the eastern sidewall (at 6 feet bgs) and at the bottom of the excavation (at 7 feet bgs).

The samples were submitted to York Analytical Laboratories, Inc. in Stratford, Connecticut (York) for analysis of VOCs.

Following UST removal, five endpoint soil samples were collected from the sidewalls and bottom of the excavation for Tanks #3 and 4. The samples were submitted to York for analysis of VOCs.

A total of ten approximately 10 cubic-yard truckloads (totaling 200 cubic yards) of recycled concrete aggregate (RCA) was imported to the Site from Pebble Lane Associates LLC located in Maspeth, New York (an NYSDEC approved source) to backfill the tank excavations.

2.3.7 In-Situ Chemical Oxidation Injection Summary Report, Langan, December 9, 2021

Treatment zones for the application of ISCO were determined based on the soil and groundwater concentrations of the petroleum-related VOCs detected at the Site. The proposed ISCO treatment zones are defined as below:

- Treatment Zone 1 is approximately 1,400 square feet and 8 feet thick (from 15 to 23 feet bgs).
- Treatment Zone 2 is approximately 1,100 square feet and 8 feet thick (from 15 to 23 feet bgs)

A summary of noteworthy observations made during injection activities is included below:

- A total of 9,520 pounds of sodium persulfate and 20,303 pounds of 25% sodium hydroxide was applied in Treatment Zone 1 between 15 to 20 feet bgs. A total of 5,712 pounds of sodium persulfate and 12,182 pounds of 25% sodium hydroxide will be applied in Treatment Zone 2 between 15 to 20 feet bgs.

- A total of 7,480 pounds of sodium persulfate and 17,060 pounds of 25% sodium hydroxide was applied in Treatment Zone 1 between 20 to 23 feet bgs. A total of 4,488 pounds of sodium persulfate and 10,236 pounds of 25% sodium hydroxide will be applied in Treatment Zone 2 between 20 to 23 feet bgs.

- With the completion of the injection event to 20 feet bgs, 25%, and over 100% of the oxidant demand will be met in Treatment Zone 1 and 2, respectively. It is expected that a minimum of approximately 33% to 45% reduction in groundwater VOC mass and up to 30% reduction in soil VOC mass can be achieved in Treatment Zone 1 and 2, respectively. Between 20 and 23 feet bgs, with the completion of the injection event, over 100% and 81% of the oxidant demand will be met in Treatment Zone 1 and 2, respectively. This would significantly reduce the potential for these soils to be a continuing source of groundwater contamination to lower zones.

- Groundwater quality monitoring data shows that changes in water quality were observed once injection started. Groundwater pH and ORP increased within the injection area and remained elevated after injections were completed. Groundwater pH and ORP increase was also observed at wells outside the treatment area during the injections; however, pH levels at two wells returned to pre-injection levels, while pH levels remained elevated at one well after the injections were completed. ORP levels at wells outside the injection area remained slightly elevated after the injections were completed. A cross-gradient wells were added to the monitoring plan. Pre-injection data was not collected at these wells. Data collected during injections showed that pH levels were at neutral, but ORP levels were elevated.

- During injection activities on September 29, 2021, minor surfacing of the injection mix was observed at MW-07. Upon discovery, injections activities were halted, and cleanup of the surfacing was performed using a vacuum and absorbent pads. In response, the pressure of the injections at the nearby wells was decreased and injection activities were recommended. No further surfacing was observed during the injection activities.

- Langan was unable to consistently collect groundwater quality parameters at monitoring well MW-07 due to observed high turbidity.

- Initial and sustained injection pressures were observed to be generally low, between 20 and 30 psi, with a flow rate between 1 to 2 gallons per minute.

- Based on the water quality changes observed in the first two days after injections started, a radius of influence (ROI) of 4.5 to 10 feet was observed at the Site during injections. Depth to water data did not follow a consistent trend and were therefore not used to estimate the ROI.

Overall, the delivery of remedial reagents was completed successfully and reagent delivery in the treatment zones was consistent with the design.

2.3.8 Waste Characterization Report, Langan, May 15, 2022

Langan had prepared a Waste Characterization Report in support of the planned redevelopment at the field investigation was completed April 11, 2022, through April 14, 2022 and included the advancement of soil borings and collection of grab and composite soil samples for laboratory analysis. The investigation was completed across the site in areas where soil/fill material will be excavated as part of construction.

Given the concentrations excavated material represented within the limits of the waste characterization study were managed as a regulated solid waste in NYS. Excavated soils were handled and transported to a disposal or reuse facility that is permitted to accept this material in accordance with applicable local, state, and federal regulations, including the revised 6 NYCRR Part 360.

2.3.9 Post ISCO Injections Groundwater Summary Report, Langan December 2022

Six groundwater monitoring events have been conducted since completion of the ISCO injections. Groundwater samples were analyzed for VOCs, SVOCs, TAL metals (filtered and unfiltered), alkalinity, and sulfate. Post-injection groundwater monitoring results summary and ISCO effectiveness are discussed below:

- The overall trend of VOCs concentrations is decreasing within the treatment area, with some notable exceptions, as compared to the baseline concentrations. Twelve months post-injection, i.e., during sixth-round of post-injection sampling, total VOCs concentrations compared to baseline concentrations decreased in MW-40D (44%), MW-42D (54%), MW-41D (66%), MW-42 (85%) and MW-41 (97%), whereas increased in MW-08 (28%) and MW-40.

- LNAPL was observed in MW-40 and MW-41D during fourth-round of post-injection groundwater monitoring, and again in MW-40 during the sixth-round of post-injection groundwater monitoring. The groundwater table in MW-40 dropped from 8.4 feet bgs (August 2021) to 10.5 feet bgs (January 2022), and subsequently rose to 7.5 feet bgs (April 2022). The groundwater table in MW-41D rose from 11.8 feet bgs (August 2021) to 9.4 feet bgs (April 2022).

- Metals analytical data show that metals concentrations increased post-injection compared to the baseline metals concentrations. A transient increase in metals concentrations was expected and is typical during ISCO remediation because of changes in geochemical environment (pH, ORP, and DO levels) resulting from injection of ISCO reagents. Increase in sodium levels are directly related to application of ISCO reagents (sodium hydroxide and sodium persulfate). The increase in levels of metals are expected to subside over time, returning to background levels when the geochemical parameters (ORP and pH) return to the baseline conditions.

- Alkalinity levels increased within the treatment area post-injection compared to the baseline level. A gradual decrease in alkalinity levels was noticed after second-round of post-injection sampling compared to first-round of sampling. A decrease in alkalinity level is expected to continue with time as groundwater conditions return to the baseline.

- Similar to alkalinity, sulfate concentrations increased post-injection as compared to baseline, because reaction of persulfate with reduced organic carbon releases sulfate as an end product. Sulfate concentrations started to decrease after second-round of post- injection sampling compared to first-round of sampling . Sulfate levels are expected to decrease further with time as sulfate is consumed in biodegradation of organic matter.

- The effectiveness of ISCO injections is evaluated based on the groundwater total VOCs concentrations trends over time. Within the treatment area, groundwater total VOCs concentrations decreased over time in five of the monitoring wells, i.e., MW-40D, MW-42D, MW-41D, MW-42 and MW-41 and increased in MW-08 and MW-40.

- Oxidation of VOCs by alkaline activated persulfate applied during ISCO injections can result in decreasing groundwater VOCs concentrations trend. Conversely, increasing groundwater VOCs concentrations can result from desorption of contaminants sorbed onto the soil particles, typically referred to as “rebound”. In addition, as the aqueous contaminants are oxidized and their concentration decreases in the aqueous phase, mass tends to release from the soil to the aqueous phase to maintain the equilibrium.

- Groundwater total VOCs concentrations trends show that ISCO injections destroyed significant contaminant mass and were overall effective in reducing contaminant concentrations.

2.3.10 Ongoing Soil Excavation and Soil Removal

As stated in the approved RAWP, part of the remediation activities completed at the site is soil excavation in connection with the development of the proposed building. It should be noted that this commenced in October 2023 and is currently on going. To date approximately 18,000 cubic yards have been removed to date and soil exporting is slated to be completed by September 2024.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the amended Decision Document dated December 28, 2016, are as follows:

Groundwater

RAOs for Public Health Protection

- Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards.
- Prevent contact with, or inhalation of, volatiles from contaminated groundwater.

RAOs for Environmental Protection

- Restore ground water aquifer to pre-disposal/pre-release conditions, to the extent practicable.
- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

- Prevent ingestion/direct contact with contaminated soil.
- Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil.

RAOs for Environmental Protection

- Prevent migration of contaminants that would result in groundwater or surface water contamination.

Soil Vapor

RAOs for Public Health Protection

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the Site.

2.5 Remaining Contamination

2.5.1 Soil

Based on the results of the post-excavation verification sampling that has been performed during the ongoing remediation at the time of this SMP's writing, remediation of the western portion (samples EP-1 through EP-8) of the Site resulted in removal of soil exhibiting contaminant concentrations above the RRSCOs except for 1,2,4-trimethylbenzene in endpoint sample EP-5. The remaining samples across the site (EP-9 through EP-31) meet Protection of Groundwater SCOs (PGSCOs).

Table 3 and Fig. 4 summarize the results of endpoint soil samples collected that exceed the Protection of Groundwater SCOs and the Restricted Residential Use SCOs at the Site to date.

2.5.2 Groundwater

ISCO injections decreased groundwater VOCs concentrations compared to the baseline concentrations. However, the effectiveness of ISCO was limited due to the presence of LNAPL, along with some limited contaminants rebound. The overall effectiveness of the groundwater remedy is also limited by the rate of contaminant partitioning out of the LNAPL. The source of the LNAPL is likely a historic petroleum release from the on-site USTs is being removed during the ongoing redevelopment soil removal activities, which commenced in October 2023.

Table 4 and Fig. 5 summarize the results of the most recent sampling event completed by Langan in October of 2022 following the completion of the ISCO injections.

During construction of the proposed structure in October 2023, the groundwater monitoring wells were destroyed. As detailed in the approved RAWP , four groundwater monitoring wells will be installed in the sidewalks around the Site and groundwater samples will be collected, further described in Section 4.3.1.

2.5.3 Soil Vapor

Concentrations of VOCs exceeding the NYSDOH AGVs for methylene chloride, TCE, and PCE were detected in six soil vapor samples collected during the RI. Several other VOCs were detected above background concentrations in soil vapor samples across the Site; however, there are no regulatory standards established for the VOCs. The analytical results and Site history indicate the source of soil vapor impacts are historic releases of petroleum at the Site. Since remedial excavation activities are being completed to a minimum of 15-feet bgs, and the suspected source areas were removed, soil vapor is unlikely to be present at the Site following construction of the new building.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the Site, ICs and ECs are required to protect human health and the environment. This IC/EC Plan describes the procedures for the implementation and management of all IC/ECs at the Site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC project manager.

This plan provides:

- A description of all IC/ECs on the Site.
- The basic implementation and intended role of each IC/EC.
- A description of the key components of the ICs set forth in the Environmental Easement.
- A description of the controls to be evaluated during each required inspection and periodic review.
- A description of plans and procedures to be followed for implementation of IC/ECs, such as the implementation of the EWP (as provided in Appendix C for the proper handling of remaining contamination that may be disturbed during maintenance or redevelopment work on the Site.
- Any other provisions necessary to identify or establish methods for implementing the IC/ECs required by the Site remedy, as determined by the NYSDEC project manager.

3.2 Institutional Controls

A series of ICs is required by the Decision Document to: (1) implement, maintain and monitor EC systems; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the Site to Restricted Residential uses only. Adherence to these ICs on the Site is required by the Environmental Easement and will be implemented under this SMP. ICs identified in the Environmental Easement may not be discontinued without an amendment to or extinguishment of the Environmental Easement. These ICs are:

- Require the remedial party or Site owner to complete and submit to the Department a periodic certification of IC and ECs in accordance with Part 375-1.8 (h)(3).

- Allow the use and development of the controlled property for Restricted Residential use only, as defined by Part 375-1.8(g), although land use is subject to local zoning laws.

- Restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH.

- Require compliance with the Department approved SMP.

- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP.

- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP.

- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP.

- Access to the site must be provided to agents, employees, or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement.

- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 2, and any potential impacts that are identified must be monitored or mitigated.

- Vegetable gardens and farming on the site are prohibited.

- An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

3.3 Engineering Controls

3.3.1 Site Composite Cover System

Exposure to remaining contamination at the Site is prevented by the proposed building footprint which will encompass the entire Site and will include, 6-inches of crushed stone followed by 1-foot of concrete. The cover is intended to be a permanent control and the quality and integrity of this cover will be inspected at defined, regular intervals in accordance with this SMP in perpetuity. Fig. 6 presents the location of the composite cover system.

The EWP provided in Appendix C outlines the procedures required to be implemented in the event the cover is breached, penetrated or temporarily removed. Procedures for the inspection of this cover are provided in the Monitoring Plan included in Section 4.0 of this SMP. Any work conducted pursuant to the EWP must also be conducted in accordance with the procedures defined in a Health and Safety Plan (HASP) and associated Community Air Monitoring Plan (CAMP), provided in Appendix E.

Any breach of the cover overlying the remaining contamination must be overseen by a PE who is licensed and registered in NYS or a qualified person who directly reports to a PE who is licensed and registered in NYS.

3.3.2 Active Subgrade Parking Area Ventilation System

Potential exposure to any residual impacted soil vapor will be prevented by a continuous waterproofing/vapor barrier membrane (manufactured by W.R. Meadows Precon) installed immediately beneath the subsurface slabs.

In addition, a cellar ventilation system consistent with NYS Mechanical Code for a ventilated parking garage will be installed in the sub-grade areas of the future Site building. The cellar level mechanical spaces and storage spaces will be ventilated consistent with code for a ventilated parking garage. Per NYS Mechanical Code, the subgrade parking garage ventilation system will not be discontinued while the subgrade structure continues to operate as a parking garage.

In the future, should this parking garage be redeveloped to any use other than a parking garage, a soil vapor intrusion evaluation shall be performed to determine if soil vapor in the subsurface is impacting indoor air. Appropriate actions may be required depending on the future use and based on the results of the evaluation. A proposal to discontinue the subgrade parking garage ventilation system will be submitted by the property owner based on confirmatory data that justifies such request. Systems will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

3.3.3 Groundwater Monitoring Well Network

During construction of the proposed structure in October 2023, the groundwater monitoring wells at the Site were destroyed. As detailed in the approved RAWP a network of four monitoring wells will be constructed to monitor the effectiveness of the remedy completed at the Site. The objective of this EC is to monitor groundwater quality until sample analytical results are below AWQS or asymptotic levels are reached.

The monitoring wells are located immediately outside the Site boundaries on the upgradient, crossgradient and downgradient sides. The upgradient well, designated PRMW-1, will be located along the sidewalk of East 241st Street. The cross-gradient wells, PRMW-2 and PRMW-3, will be located within the sidewalk along Furman Avenue and White Plains Road. The downgradient well, PRMW-4, will be located in the sidewalk along Furman Avenue proximate to the southern portion of the Site. Fig. 7 shows the location of the EC monitoring well network for the site.

The monitoring well network will be installed upon completion of construction at the Site.

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced if an event renders the wells unusable.

Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC project manager will be notified prior to any repair or decommissioning of any monitoring well for the purpose of replacement, and the repair or decommissioning and replacement process will be documented in the subsequent Periodic Review Report (PRR). Well decommissioning without replacement will be done only with the prior approval of the NYSDEC project manager. Well abandonment will be performed in accordance with NYSDEC's guidance entitled "CP-43: Groundwater Monitoring Well Decommissioning Procedures." Monitoring wells that are decommissioned because they have been rendered unusable will be replaced in kind in the nearest available location, unless otherwise approved by the NYSDEC project manager.

3.3.4 Criteria for Completion of Remediation

Generally, remedial processes are considered completed when monitoring indicates that the remedy has achieved the RAOs identified by the decision document. The framework for determining when remedial processes are complete is provided in Section 6.4 of NYSDEC DER-10. Unless waived by the NYSDEC, confirmation samples of applicable environmental media are required before terminating any remedial actions at the Site. Confirmation samples require Category B deliverables and a Data Usability Summary Report (DUSR).

As discussed below, the NYSDEC may approve termination of a groundwater monitoring program. When a remedial party receives this approval, the remedial party will decommission all Site-related monitoring, injection and recovery wells as per the NYSDEC CP-43 policy.

The remedial party will also conduct any needed Site restoration activities, such as asphalt patching. In addition, the remedial party will conduct any necessary restoration of vegetation coverage, trees and wetlands, and will comply with NYSDEC regulations and guidance. Also, the remedial party will ensure that no ongoing erosion is occurring on the Site.

3.3.4.1 Composite Cover System

The composite cover system is a permanent control, and the quality and integrity of this system will be inspected at defined, regular intervals in accordance with this SMP in perpetuity.

3.3.4.2 Parking Garage Ventilation System

The proposed building will include a subgrade parking garage that encompasses the entire basement. As such, per NYS Mechanical Code, the parking garage will require a ventilation system. Given the potential for soil vapor to be present at the Site with the known contamination the ventilation system will not be discontinued unless prior written approval is granted by the NYSDEC and the NYSDOH project managers.

3.3.4.3 Monitoring Well Network Sampling Program

Groundwater monitoring activities to assess effectiveness of the remedy will continue, as determined by the NYSDEC project manager in consultation with NYSDOH project manager, until residual groundwater concentrations are found to be consistently below AWQS or the site SCGs or have become asymptotic at an acceptable level over an extended period. If monitoring data indicates that monitoring may no longer be required, a proposal to discontinue the remedy will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC project manager. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional injections, source removal, treatment and/or control measures will be evaluated.

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of the NYSDEC project manager. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of Site management for the Site are included in the Quality Assurance Project Plan provided in Appendix F.

This Monitoring and Sampling Plan describes the methods to be used for:

- Sampling and analysis of all appropriate media (e.g., groundwater).
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly groundwater standards and Part 375 SCOs for soil.
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment.

To adequately address these issues, this Monitoring and Sampling Plan provides information on:

- Sampling locations, protocol and frequency.
- Information on all designed monitoring systems.
- Analytical sampling program requirements.
- Inspection and maintenance requirements for monitoring wells.
- Monitoring well decommissioning procedures.
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP. All on-site work conducted under this Monitoring and Sampling Plan shall be performed in accordance with the site-specific HASP included in Appendix E.

4.2 Site-wide Inspection

Site-wide inspections will be performed at a minimum of once per year. These periodic inspections must be conducted when the ground surface is visible (i.e., no snow cover).

Site-wide inspections will be performed by a qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in NYS, or a qualified person who directly reports to a PE who is licensed and registered in NYS. Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices.

During these inspections, an inspection form will be completed as provided in Appendix G – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage.
- An evaluation of the condition and continued effectiveness of ECs.
- General Site conditions at the time of the inspection.
- Whether stormwater management systems, such as basins and outfalls, are working as designed.
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection.
- Confirm that Site records are up to date.

Inspections of all remedial components installed at the Site will be conducted. A comprehensive Site-wide inspection will be conducted and documented according to the SMP schedule, regardless of the frequency of the PRR. The inspections will determine and document the following:

- Whether ECs continue to perform as designed.
- If these controls continue to be protective of human health and the environment.
- Compliance with requirements of this SMP and the Environmental Easement.

- Achievement of remedial performance criteria.
- If Site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the Site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the Site by a qualified environmental professional, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public. The remedial party will submit follow-up status reports to the NYSDEC within 45 days of the event on actions taken to respond to any emergency event requiring ongoing responsive action, describing and documenting actions taken to restore the effectiveness of the ECs.

4.3 Post-Remediation Media Monitoring and Sampling

Samples will be collected from the groundwater to evaluate the effectiveness of the remedy. Sampling locations, required analytical parameters, and schedule are provided in Table 4 below. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

Table 5. Post Remediation Sampling Requirements and Schedule

Sampling Location				
	VOCs (EPA Method 8260D)	SVOCs (EPA Method 8270D)	RCRA Metals	
Groundwater				
PRMW-1	X	X	X	Quarterly
PRMW-2	X	X	X	
PRMW-3	X	X	X	
PRMW-4	X	X	X	

Detailed sample collection and analytical procedures and protocols are provided below and are further described in Appendix H – Field Activities Plan and Appendix F – Quality Assurance Project Plan.

4.3.1 Groundwater Sampling

Upon completion of construction and installation of the proposed groundwater monitoring wells, groundwater samples will be collected from the proposed wells on a quarterly basis for one year (four sampling events) to re-establish a baseline of groundwater concentrations. Following establishment of the groundwater conditions, groundwater monitoring will be performed annually to assess the performance of the remedy and to satisfy the requirements of the open NYSDEC Spills case.

The sampling frequency may only be modified with the approval of the NYSDEC project manager. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC project manager.

Deliverables for the groundwater monitoring program are specified in Section 7.0 – Reporting Requirements.

4.3.2 Post-Mitigation Soil Vapor Intrusion and Indoor Air Sampling

The parking garage encompasses the entire footprint of the proposed building and will be constructed with continuously operated high-volume air exchange systems in compliance with New York City Mechanical Code, therefore an SVI and indoor air evaluation will not be conducted. However, In the future, should this parking garage be redeveloped to any use other than a parking garage, a soil vapor intrusion evaluation shall be performed to determine if soil vapor in the subsurface is impacting indoor air. Appropriate actions may be required depending on the future use and based on the results of the evaluation.

4.3.3 Monitoring and Sampling Protocol

All monitoring activities will be recorded in a field book and associated Site inspection form will be completed as provided in Appendix H - Site Management Forms.

Other observations (e.g., groundwater monitoring well integrity) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring well network. Additional details regarding monitoring and sampling protocols are provided in the site-specific Quality Assurance Project Plan provided as Appendix F of this document.

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

The Site remedy does not rely on any mechanical systems. These systems include, a groundwater treatment system, sub-slab depressurization systems or air sparge/soil vapor extraction systems to protect public health and the environment. Therefore, the operation and maintenance of such components is not included in this SMP.

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given Site and associated remedial systems. Vulnerability assessments provide information so that the Site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a current vulnerability assessment that evaluates the vulnerability of the Site and/or ECs to severe storms/weather events and associated flooding. This section also identifies vulnerability assessment updates that will be conducted for the Site in PRRs.

The Site is not located within any State or Federal flood plains. Erosion is not a concern, as the entire Site footprint is covered by buildings. No part of the Site is susceptible to damage due to high wind conditions. Flooding is unlikely, as the on-site buildings are equipped with stormwater detention basins. Because the parking garage ventilation system is activated by an electric in-line ventilation fans, the systems operation will be susceptible to disruption due to electrical power outage. There is no potential for a spill or contaminant release due to climate related events.

6.2 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including Site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section provides an environmental footprint analysis of the remedy, as implemented at the time of this SMP. This section of the SMP also provides a summary of green remediation evaluations to be completed for the Site during Site management and reported in PRRs.

The bulk of the Site remedy is a passive Site composite cover system, which generates no waste, uses no resources after installation, creates no emissions, and maintains the current footprint of the Site.

This SMP includes a routine groundwater monitoring program for which low-flow sample collection techniques and low-volume analysis methods will be employed. To reduce the overall environmental footprint of the post-remedy monitoring program, the sampling frequency will be reduced if sample analytical results depict a downward trend or if asymptotic levels are reached, pending approval from the DEC Project Manager.

7.0. REPORTING REQUIREMENTS

7.1 Site Management Reports

All Site management inspection, maintenance and monitoring events will be recorded on the appropriate Site management forms provided in Appendix G. These forms are subject to NYSDEC revision. All Site management inspection, maintenance, and monitoring events will be conducted by a QEP as defined in 6 NYCRR Part 375, a PE who is licensed and registered in NYS, or a qualified person who directly reports to a PE who is licensed and registered in NYS.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the Site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 5 and summarized in the PRR.

Table 6. Schedule of Interim Monitoring/Inspection Reports

Task/Report	**Reporting Frequency***
Quarterly Groundwater Sampling Report	Quarterly
Periodic Review Report	First report 16 months after issuance of COC and annually thereafter, or as otherwise determined by the NYSDEC

* The frequency of events will be conducted as specified until otherwise approved by the NYSDEC project manager.

All monitoring/inspections reports will include, at a minimum:

- Date of event or reporting period.
- Name, company, and position of person(s) conducting monitoring/inspection activities.
- Description of the activities performed.

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet).

- Type of samples collected (e.g., groundwater).

- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation).

- Sampling results in comparison to appropriate standards/criteria.

- A figure illustrating sample type and sampling locations.

- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format).

- Any observations, conclusions, or recommendations.

- A determination as to whether contaminant conditions have changed since the last reporting event.

Routine maintenance event reporting forms will include, at a minimum:

- Date of event.

- Name, company, and position of person(s) conducting maintenance activities.

- Description of maintenance activities performed.

- Any modifications to the system.

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet).

- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

Non-routine maintenance event reporting forms will include, at a minimum:

- Date of event.

- Name, company, and position of person(s) conducting non-routine maintenance/repair activities.

- Description of non-routine activities performed.

- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet).
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

Data will be reported in digital format as determined by the NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS^{TM} database in accordance with the requirements found at this link http://www.dec.ny.gov/chemical/62440.html.

7.2 Periodic Review Report

A PRR will be submitted to the NYSDEC project manager beginning 16 months after the COC is issued. After submittal of the initial PRR, the next PRR shall be submitted annually to the NYSDEC project manager or at another frequency as may be required by the NYSDEC project manager. In the event that the Site is subdivided into separate parcels with different ownership, a single PRR will be prepared that addresses the Site described in Appendix A -Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the PRR. The report will include:

- Identification, assessment and certification of all ECs/ICs required by the remedy for the Site.
- Results of the required annual Site inspections, fire inspections and severe condition inspections, if applicable.
- Description of any change of use, import of materials, or excavation that occurred during the certifying period.
- All applicable Site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- Identification of any wastes generated during the reporting period, along with waste characterization data, manifests, and disposal documentation.

- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.

- Data summary tables and graphical representations of COCs by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These tables and figures will include a presentation of past data as part of an evaluation of contaminant concentration trends, including but not limited to:

  - Trend monitoring graphs that present groundwater contaminant levels from before the start of the remedy implementation to the most current sampling data.
  - Trend monitoring graphs depicting system influent analytical data on a per event and cumulative basis.
  - O&M data summary tables.
  - A current plume map for sites with remaining groundwater contamination.
  - A groundwater elevation contour map for each gauging event.

- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS^{TM} database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

- A Site evaluation, which includes the following:

  - The compliance of the remedy with the requirements of the Site-specific Remedial Action Work Plan (RAWP), ROD or Decision Document.
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications.
  - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored.
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan.
  - An update to the climate change vulnerability assessment if Site or external conditions have changed since the previous assessment, and recommendations to address vulnerabilities.

  - An evaluation of trends in contaminant levels in the affected media to determine if the remedy continues to be effective in achieving remedial goals as specified by the RAWP, ROD or Decision Document; and
  - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Following the last inspection of the reporting period, a PE licensed to practice and registered in NYS will prepare, and include in the PRR, the following certification as per the requirements of NYSDEC DER-10:

"For each IC or EC identified for the Site, I certify that all of the following statements are true:

- *The inspection of the Site to confirm the effectiveness of the ICs and ECs required by the remedial program was performed under my direction.*
- *The ICs control and/or EC employed at this Site is unchanged from the date the control was put in place, or last approved by the Department.*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment.*
- *Nothing has occurred that would constitute a violation or failure to comply with any SMP for this control.*
- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control.*
- *If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document.*
- *Use of the Site is compliant with the environmental easement.*
- *The EC systems are performing as designed and are effective.*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the Site remedial program and generally accepted engineering practices.*
- *The information presented in this report is accurate and complete.*

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] (and if the site consists of multiple properties): *[I have been authorized and designated by all site owners/remedial parties to sign this certification] for the site."*

"I certify that the NYS Education Department has granted a Certificate of Authorization to provide Professional Engineering services to the firm that prepared this PRR."

At the end of each certifying period, as determined by the NYSDEC project manager, the following certification will be provided to the NYSDEC project manager:

"For each ICs control identified for the Site, I certify that all of the following statements are true:

- *The ICs control employed at this Site is unchanged from the date the control was put in place, or last approved by the Department.*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment.*
- *Nothing has occurred that would constitute a violation or failure to comply with any SMP for this control.*
- *Access to the Site will continue to be provided to the Department to evaluate the remedy, including access to evaluate the continued maintenance of this control.*
- *If a financial assurance mechanism is required under the oversight document for the Site, the mechanism remains valid and sufficient for the intended purpose under the document.*
- *Use of the Site is compliant with the environmental easement.*
- *The information presented in this report is accurate and complete.*

"I certify that the New York State Education Department has granted a Certificate of Authorization to provide Professional Engineering services to the firm that prepared this Periodic Review Report."

The signed certification will be included in the PRR.

The PRR will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager. The PRR may also need to be submitted in hard-copy format if requested by the NYSDEC project manager.

7.3 Corrective Measures Work Plan

If any component of the remedy is found to have failed, or if the periodic certification cannot be provided due to the failure of an IC or EC or failure to conduct Site management activities, a Corrective Measures Work Plan will be submitted to the NYSDEC project manager for approval. This plan will explain the failure and provide the details and schedule for performing work necessary to correct the failure. Unless an emergency condition exists, no work will be performed pursuant to the Corrective Measures Work Plan until it has been approved by the NYSDEC project manager.

8.0 REFERENCES

Phase I Environmental Site Assessment (ESA) Report, 700 East 241st Street (former lot 62), Giorgio Engineering International, P.C., February 12, 2008;

Phase II Subsurface Investigation Report, Environmental Business Consultants (EBC);

Phase I ESA Report, Langan, January 9, 2015;

Phase II Environmental Site Investigation (ESI), Langan, February 3, 2015;

Remedial Investigation Report, Langan, April, 2016;

UST Removal Completion Report, Langan, December 20, 2019

In-Situ Chemical Oxidation Injection Summary Report, Langan, December 9, 2021;

Waste Characterization Report, Langan, May 15, 2022; and

Post ISCO Injections GW Summary Report, Langan December 2022

6 NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.

NYSDEC DER-10 – “Technical Guidance for Site Investigation and Remediation”.

NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).

TABLES

Table 2

Groundwater Elevation Measurements

714 East 241 Street Bronx, New York

Sample Name	Date	Observed Depth to Groundwater(2)
Groundwater Samples		
MW07_10.6.15	6-Oct-15	12.01 feet bgs
MW08_10.6.15	6-Oct-15	9.47 feet bgs
MW11_10.6.15	6-Oct-15	11.76 feet bgs
MW13_10.6.15	6-Oct-15	13.43 feet bgs
MW15_10.6.15	6-Oct-15	11.72 feet bgs
MW16_10.6.15	6-Oct-15	12.52 feet bgs
MW17_10.6.15	6-Oct-15	11.73 feet bgs
MW19_10.6.15	6-Oct-15	10.20 feet bgs
MW29_10.6.15	6-Oct-15	12.10 feet bgs
GWDUP01_10.6.15 (MW08_10.6.15)	6-Oct-15	9.47 feet bgs
MS/MSD-GW01_10.6.15 (MW16_10.6.15)	6-Oct-15	12.52 feet bgs
GWFB01_10.6.15	6-Oct-15	--
GWTB01_10.6.15	6-Oct-15	--

Notes:

1) Groundwater depths based on field observations (soil), and monitoring well gauging (groundwater)

2) Table from Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C Remedial Investigation Report prepared in April 2016

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-1** **24B0971-01** **2/16/2024 2:30:00 PM** **Soil**		**EP-2** **24B0971-02** **2/16/2024 2:30:00 PM** **Soil**		**EP-3** **24B0971-03** **2/16/2024 2:30:00 PM** **Soil**		**EP-4** **24B0971-04** **2/16/2024 2:30:00 PM** **Soil**		**EP-5** **24B0971-05** **2/16/2024 2:30:00 PM** **Soil**		**EP-5A** **24G1471-01** **7/22/2024 11:00:00 AM** **Soil**		**EP-6** **24B0971-06** **2/16/2024 2:30:00 PM** **Soil**		**EP-7** **24B0971-07** **2/16/2024 2:30:00 PM** **Soil**		**EP-8** **24B0971-08** **2/16/2024 2:30:00 PM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
VOA, 8260 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			200		500		100		200		1000		1		200		1		1	
1,1,1,2-Tetrachloroethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,1,1-Trichloroethane	0.68	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,1,2,2-Tetrachloroethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,1,2-Trichloroethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,1-Dichloroethane	0.27	26	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,1-Dichloroethylene	0.33	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,1-Dichloropropylene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,2,3-Trichlorobenzene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,2,3-Trichloropropane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,2,4-Trichlorobenzene	~	~	NT		0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,2,4-Trimethylbenzene	3.6	52	**47**	D	**32**	D	**3.800**	D	**26**	D	**62**	D	0.00240	U	**15**	D	0.00390		0.420	E
1,2-Dibromo-3-chloropropane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,2-Dibromoethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,2-Dichlorobenzene	1.1	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,2-Dichloroethane	0.02	3.1	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,2-Dichloropropane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,3,5-Trimethylbenzene	8.4	52	**15**	D	**23**	D	2.500	D	**19**	D	**46**	D	0.00240	U	**10**	D	0.0180		0.150	
1,3-Dichlorobenzene	2.4	49	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,3-Dichloropropane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,4-Dichlorobenzene	1.8	13	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
1,4-Dioxane	0.1	13	0.0250	U	11	U	1.600	U	8.600	U	25	U	0.0480	U	10	U	0.0240	U	0.0230	U
2,2-Dichloropropane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
2-Butanone	0.12	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
2-Chlorotoluene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
2-Hexanone	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
4-Chlorotoluene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
4-Methyl-2-pentanone	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Acetone	0.05	100	0.0150		1.100	U	0.160	U	0.860	U	2.500	U	0.00480	U	1	U	0.00360	J	0.00230	U
Acrolein	~	~	0.00250	U	1.100	U	0.160	U	0.860	U	2.500	U	0.00480	U	1	U	0.00240	U	0.00230	U
Acrylonitrile	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Benzene	0.06	4.8	0.0420		0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Bromobenzene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Bromochloromethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Bromodichloromethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Bromoform	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Bromomethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Carbon disulfide	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Carbon tetrachloride	0.76	2.4	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Chlorobenzene	1.1	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Chloroethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Chloroform	0.37	49	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Chloromethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
cis-1,2-Dichloroethylene	0.25	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
cis-1,3-Dichloropropylene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Cyclohexane	~	~	0.100		0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.0210	
Dibromochloromethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Dibromomethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Dichlorodifluoromethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Ethyl Benzene	1	41	**6.600**	D	**8.500**	D	0.730	D	**4.300**	D	**19**	D	0.00240	U	**2.200**	D	0.00120	U	0.0340	
Hexachlorobutadiene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Isopropylbenzene	~	~	1.700	D	1.200	D	0.140	JD	0.960	D	3	D	0.00240	U	0.580	JD	0.00120	U	0.00960	
Methyl acetate	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Methyl tert-butyl ether (MTBE)	0.93	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Methylcyclohexane	~	~	0.760	D	4.300	D	0.0790	U	2.500	D	9.100	D	0.00240	U	3.400	D	0.00440		0.0170	
Methylene chloride	0.05	100	0.00250	U	1.100	U	**0.320**	D	0.860	U	2.500	U	0.00480	U	1	U	0.00240	U	0.00230	J
n-Butylbenzene	12	100	2.100	D	0.530	U	0.0790	U	0.430	U	4.300	D	0.00240	U	0.510	U	0.00120	U	0.0120	
n-Propylbenzene	3.9	100	**6.700**	D	**4.400**	D	0.510	D	3.400	D	**9.700**	D	0.00240	U	2.700	D	0.00120	U	0.0240	
o-Xylene	~	~	10	D	7.800	D	0.830	D	5.200	D	19	D	0.00240	U	1.900	D	0.0100		0.140	
p- & m- Xylenes	~	~	29	D	34	D	2.600	D	19	D	69	D	0.00480	U	8.900	D	0.00340	J	0.240	
p-Isopropyltoluene	~	~	0.0830		0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00520	
sec-Butylbenzene	11	100	0.120		0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00570	
Styrene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
tert-Butyl alcohol (TBA)	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
tert-Butylbenzene	5.9	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Tetrachloroethylene	1.3	19	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Toluene	0.7	100	**0.820**	D	**4.400**	D	0.150	JD	**1.100**	D	**13**	D	0.00240	U	0.510	U	0.00120	U	0.0200	
trans-1,2-Dichloroethylene	0.19	100	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
trans-1,3-Dichloropropylene	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Trichloroethylene	0.47	21	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Trichlorofluoromethane	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Vinyl acetate	~	~	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Vinyl Chloride	0.02	0.9	0.00120	U	0.530	U	0.0790	U	0.430	U	1.200	U	0.00240	U	0.510	U	0.00120	U	0.00120	U
Xylenes, Total	1.6	100	**39**	D	**42**	D	**3.400**	D	**25**	D	**89**	D	0.00720	U	**11**	D	0.0140		0.390	

Table 3. Endpoint Sample Results
Enclave on 241st Development

Sample ID York ID Sampling Date Client Matrix	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	EP-1 24B0971-01 2/16/2024 2:30:00 PM Soil		EP-2 24B0971-02 2/16/2024 2:30:00 PM Soil		EP-3 24B0971-03 2/16/2024 2:30:00 PM Soil		EP-4 24B0971-04 2/16/2024 2:30:00 PM Soil		EP-5 24B0971-05 2/16/2024 2:30:00 PM Soil		EP-5A 24G1471-01 7/22/2024 11:00:00 AM Soil		EP-6 24B0971-06 2/16/2024 2:30:00 PM Soil		EP-7 24B0971-07 2/16/2024 2:30:00 PM Soil		EP-8 24B0971-08 2/16/2024 2:30:00 PM Soil	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatiles, 1,4-Dioxane 8270 SIM-Soil	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1				1		1		1	
1,4-Dioxane	13	13	0.0198	U	0.0185	U	0.0185	U	0.0196	U	0.0189	U	NT		0.0189	U	0.0189	U	0.0198	U
SVOA, 8270 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			2		2		2		2		2				2		2		2	
1,1-Biphenyl	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
1,2,4,5-Tetrachlorobenzene	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
1,2,4-Trichlorobenzene	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
1,2-Dichlorobenzene	1.1	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
1,2-Diphenylhydrazine (as Azobenzene)	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
1,3-Dichlorobenzene	2.4	49	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
1,4-Dichlorobenzene	1.8	13	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2,3,4,6-Tetrachlorophenol	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
2,4,5-Trichlorophenol	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2,4,6-Trichlorophenol	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2,4-Dichlorophenol	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2,4-Dimethylphenol	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2,4-Dinitrophenol	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
2,4-Dinitrotoluene	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2,6-Dinitrotoluene	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2-Chloronaphthalene	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2-Chlorophenol	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2-Methylnaphthalene	~	~	0.0459	U	0.0458	U	0.0459	U	0.734	D	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2-Methylphenol	0.33	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
2-Nitroaniline	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
2-Nitrophenol	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
3- & 4-Methylphenols	0.33	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
3,3-Dichlorobenzidine	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
3-Nitroaniline	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
4,6-Dinitro-2-methylphenol	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
4-Bromophenyl phenyl ether	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
4-Chloro-3-methylphenol	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
4-Chloroaniline	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
4-Chlorophenyl phenyl ether	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
4-Nitroaniline	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
4-Nitrophenol	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
Acenaphthene	98	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Acenaphthylene	107	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Acetophenone	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Aniline	~	~	0.183	U	0.183	U	0.183	U	0.186	U	0.181	U	NT		0.182	U	0.181	U	0.181	U
Anthracene	1000	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Atrazine	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzaldehyde	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzidine	~	~	0.183	U	0.183	U	0.183	U	0.186	U	0.181	U	NT		0.182	U	0.181	U	0.181	U
Benzo(a)anthracene	1	1	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzo(a)pyrene	22	1	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzo(b)fluoranthene	1.7	1	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzo(g,h,i)perylene	1000	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzo(k)fluoranthene	1.7	3.9	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzoic acid	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzyl alcohol	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Benzyl butyl phthalate	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Bis(2-chloroethoxy)methane	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Bis(2-chloroethyl)ether	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Bis(2-chloroisopropyl)ether	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Bis(2-ethylhexyl)phthalate	~	~	0.0542	JD	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Caprolactam	~	~	0.0916	U	0.0914	U	0.0916	U	0.0928	U	0.0905	U	NT		0.0907	U	0.0903	U	0.0906	U
Carbazole	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Chrysene	1	3.9	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Dibenzo(a,h)anthracene	1000	0.33	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Dibenzofuran	210	59	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Diethyl phthalate	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Dimethyl phthalate	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Di-n-butyl phthalate	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Di-n-octyl phthalate	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Fluoranthene	1000	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Fluorene	386	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Hexachlorobenzene	3.2	1.2	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Hexachlorobutadiene	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Hexachlorocyclopentadiene	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Hexachloroethane	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Isophorone	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Naphthalene	12	100	0.0459	U	0.0458	U	0.0459	U	0.509	D	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Nitrobenzene	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
N-Nitrosodimethylamine	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
N-nitroso-di-n-propylamine	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
N-Nitrosodiphenylamine	~	~	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Pentachlorophenol	0.8	6.7	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Phenanthrene	1000	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Phenol	0.33	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Pyrene	1000	100	0.0459	U	0.0458	U	0.0459	U	0.0465	U	0.0454	U	NT		0.0455	U	0.0453	U	0.0454	U
Pyridine	~	~	0.183	U	0.183	U	0.183	U	0.186	U	0.181	U	NT		0.182	U	0.181	U	0.181	U

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-1** **24B0971-01** **2/16/2024 2:30:00 PM** **Soil**		**EP-2** **24B0971-02** **2/16/2024 2:30:00 PM** **Soil**		**EP-3** **24B0971-03** **2/16/2024 2:30:00 PM** **Soil**		**EP-4** **24B0971-04** **2/16/2024 2:30:00 PM** **Soil**		**EP-5** **24B0971-05** **2/16/2024 2:30:00 PM** **Soil**		**EP-5A** **24G1471-01** **7/22/2024 11:00:00 AM** **Soil**		**EP-6** **24B0971-06** **2/16/2024 2:30:00 PM** **Soil**		**EP-7** **24B0971-07** **2/16/2024 2:30:00 PM** **Soil**		**EP-8** **24B0971-08** **2/16/2024 2:30:00 PM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PEST, 8081 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			5		5		5		5		5				5		5		5	
4,4'-DDD	14	13	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
4,4'-DDE	17	8.9	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
4,4'-DDT	136	7.9	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Aldrin	0.19	0.097	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
alpha-BHC	0.02	0.48	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
alpha-Chlordane	2.9	4.2	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
beta-BHC	0.09	0.36	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Chlordane, total	~	~	0.0362	U	0.0362	U	0.0362	U	0.0365	U	0.0358	U	NT		0.0359	U	0.0357	U	0.0359	U
delta-BHC	0.25	100	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Dieldrin	0.1	0.2	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Endosulfan I	102	24	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Endosulfan II	102	24	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Endosulfan sulfate	1000	24	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Endrin	0.06	11	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Endrin aldehyde	~	~	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Endrin ketone	~	~	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
gamma-BHC (Lindane)	0.1	1.3	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
gamma-Chlordane	~	~	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Heptachlor	0.38	2.1	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Heptachlor epoxide	~	~	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Methoxychlor	~	~	0.00181	U	0.00181	U	0.00181	U	0.00182	U	0.00179	U	NT		0.00179	U	0.00179	U	0.00179	U
Toxaphene	~	~	0.181	U	0.181	U	0.181	U	0.182	U	0.179	U	NT		0.179	U	0.179	U	0.179	U
Metals, Target Analyte	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1				1		1		1	
Aluminum	~	~	6,200		7,060		5,340		6,210		7,910		NT		6,770		6,930		7,210	
Antimony	~	~	2.300	U	2.290	U	2.290	U	2.320	U	2.270	U	NT		2.270	U	2.260	U	2.270	U
Arsenic	16	16	2.150		5.170		1.510		3.730		3.080		NT		1.580		2.240		1.860	
Barium	820	400	45.100		50.500		37.300		32.900		58.200		NT		39.900		50		53.700	
Beryllium	47	72	0.0460	U	0.0460	U	0.0460	U	0.0470	U	0.0460	U	NT		0.0460	U	0.0460	U	0.0460	U
Cadmium	7.5	4.3	0.275	U	0.275	U	0.275	U	0.282		0.272	U	NT		0.273	U	0.272	U	0.273	U
Calcium	~	~	18,800		19,600		2,820		106,000		16,000		NT		11,300		17,000		16,800	
Chromium	~	~	12.700		14.900		13		9.390		17.700		NT		16.900		15.400		16.100	
Cobalt	~	~	6.110		7.270		6.740		4.490		8.130		NT		7.230		7.230		7.550	
Copper	1720	270	16.300		15.400		18.200		13		20.100		NT		16.800		17.700		17.500	
Iron	~	~	12,700		14,100		12,800		8,170		15,700		NT		12,900		13,500		15,200	
Lead	450	400	7.750		9.480		11.100		2.510		9.230		NT		8.970		7.810		8.710	
Magnesium	~	~	7,900		8,600		3,350		71,600		6,990		NT		6,100		6,780		7,590	
Manganese	2000	2000	264		286		193		456		337		NT		457		286		386	
Nickel	130	310	14.600		19.500		17.700		8.780		19.700		NT		17.700		17.700		20.600	
Potassium	~	~	1,410		1,580		1,120		643		2,020		NT		1,440		1,720		1,650	
Selenium	4	180	2.300	U	2.290	U	2.290	U	**22.500**		2.270	U	NT		2.270	U	2.260	U	2.270	U
Silver	8.3	180	0.463	U	0.462	U	0.463	U	0.469	U	0.457	U	NT		0.458	U	0.456	U	0.458	U
Sodium	~	~	683		1,160		122		89.800		217		NT		652		140		148	
Thallium	~	~	2.300	U	2.290	U	2.290	U	2.320	U	2.270	U	NT		2.270	U	2.260	U	2.270	U
Vanadium	~	~	16.700		20.100		20		9.710		21.200		NT		20		18.400		24.100	
Zinc	2480	10000	29.800		35		26.100		13.200		35.600		NT		31.200		31		34	
Mercury by 7473	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1				1		1		1	
Mercury	0.730	0.81	0.0331	U	0.0330	U	0.0331	U	0.0335	U	0.0327	U	NT		0.0327	U	0.0326	U	0.0327	U
Chromium, Hexavalent	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1				1		1		1	
Chromium, Hexavalent	19	110	0.551	U	0.550	U	0.551	U	0.558	U	0.545	U	NT		0.546	U	0.543	U	0.545	U
Chromium, Trivalent	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1				1		1		1	
Chromium, Trivalent	~	180	12.700		14.900		13		9.390		17.700		NT		16.900		15.400		16.100	
Cyanide, Total	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1				1		1		1	
Cyanide, total	40	27	0.551	U	0.550	U	0.551	U	0.558	U	0.545	U	NT		0.546	U	0.543	U	0.545	U
Total Solids			%		%		%		%		%		%		%		%		%	
Dilution Factor			1		1		1		1		1		1		1		1		1	
% Solids	~	~	90.800		90.900		90.800		89.600		91.800		91.400		91.700		92		91.700	

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID York ID Sampling Date Client Matrix	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	EP-1 24B0971-01 2/16/2024 2:30:00 PM Soil		EP-2 24B0971-02 2/16/2024 2:30:00 PM Soil		EP-3 24B0971-03 2/16/2024 2:30:00 PM Soil		EP-4 24B0971-04 2/16/2024 2:30:00 PM Soil		EP-5 24B0971-05 2/16/2024 2:30:00 PM Soil		EP-5A 24G1471-01 7/22/2024 11:00:00 AM Soil		EP-6 24B0971-06 2/16/2024 2:30:00 PM Soil		EP-7 24B0971-07 2/16/2024 2:30:00 PM Soil		EP-8 24B0971-08 2/16/2024 2:30:00 PM Soil	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PCB, 8082 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg				mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1				1		1		1	
Aroclor 1016	~	~	0.0183	U	0.0183	U	0.0183	U	0.0184	U	0.0181	U	NT		0.0181	U	0.0180	U	0.0181	U
Aroclor 1221	~	~	0.0183	U	0.0183	U	0.0183	U	0.0184	U	0.0181	U	NT		0.0181	U	0.0180	U	0.0181	U
Aroclor 1232	~	~	0.0183	U	0.0183	U	0.0183	U	0.0184	U	0.0181	U	NT		0.0181	U	0.0180	U	0.0181	U
Aroclor 1242	~	~	0.0183	U	0.0183	U	0.0183	U	0.0184	U	0.0181	U	NT		0.0181	U	0.0180	U	0.0181	U
Aroclor 1248	~	~	0.0183	U	0.0183	U	0.0183	U	0.0184	U	0.0181	U	NT		0.0181	U	0.0180	U	0.0181	U
Aroclor 1254	~	~	0.0183	U	0.0183	U	0.0183	U	0.0184	U	0.0181	U	NT		0.0181	U	0.0180	U	0.0181	U
Aroclor 1260	~	~	0.0183	U	0.0183	U	0.0183	U	0.0184	U	0.0181	U	NT		0.0181	U	0.0180	U	0.0181	U
Total PCBs	3.2	1	0.0183	U	0.0183	U	0.0183	U	0.0184	U	0.0181	U	NT		0.0181	U	0.0180	U	0.0181	U
PFAS, EPA 1633 Target List			mg/kg		mg/kg		mg/kg		mg/kg		mg/kg				mg/kg		mg/kg		mg/kg	
Dilution Factor			1		1		1		1		1				1		1		1	
11CL-PF3OUdS	~	~	0.00034	U	0.00034	U	0.00034	U	0.00034	U	0.00034	U	NT		0.00034	U	0.00034	U	0.00034	U
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 F	~	~	0.00082	U	0.00083	U	0.00083	U	0.00083	U	0.00082	U	NT		0.00082	U	0.00082	U	0.00082	U
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 F	~	~	0.00065	U	0.00065	U	0.00066	U	0.00066	U	0.00065	U	NT		0.00065	U	0.00064	U	0.00065	U
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 F	~	~	0.00065	U	0.00065	U	0.00066	U	0.00066	U	0.00065	U	NT		0.00065	U	0.00064	U	0.00065	U
3-Perfluoroheptyl propanoic acid (FHpPA)	~	~	0.00163	U	0.00165	U	0.00165	U	0.00165	U	0.00163	U	NT		0.00164	U	0.00162	U	0.00163	U
3-Perfluoropentyl propanoic acid (FPePA)	~	~	0.00228	U	0.00231	U	0.00231	U	0.00231	U	0.00229	U	NT		0.00229	U	0.00227	U	0.00227	U
3-Perfluoropropyl propanoic acid (FPrPA)	~	~	0.00069	U	0.00070	U	0.00070	U	0.00070	U	0.00069	U	NT		0.00069	U	0.00069	U	0.00069	U
9CL-PF3ONS	~	~	0.00027	U	0.00027	U	0.00027	U	0.00027	U	0.00027	U	NT		0.00027	U	0.00027	U	0.00027	U
ADONA	~	~	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NT		0.00019	U	0.00019	U	0.00019	U
HFPO-DA (Gen-X)	~	~	0.00066	U	0.00067	U	0.00067	U	0.00067	U	0.00066	U	NT		0.00066	U	0.00066	U	0.00066	U
N-EtFOSA	~	~	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	NT		0.00022	U	0.00021	U	0.00022	U
N-EtFOSAA	~	~	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	NT		0.00021	U	0.00021	U	0.00021	U
N-EtFOSE	~	~	0.00076	U	0.00077	U	0.00077	U	0.00077	U	0.00076	U	NT		0.00076	U	0.00075	U	0.00076	U
N-MeFOSA	~	~	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	NT		0.00020	U	0.00019	U	0.00020	U
N-MeFOSAA	~	~	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NT		0.00016	U	0.00016	U	0.00016	U
N-MeFOSE	~	~	0.00067	U	0.00067	U	0.00067	U	0.00067	U	0.00067	U	NT		0.00067	U	0.00066	U	0.00066	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	~	~	0.00015	U	0.00015	U	0.00015	U	0.00015	U	0.00015	U	NT		0.00015	U	0.00015	U	0.00015	U
Perfluoro-1-decanesulfonic acid (PFDS)	~	~	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	NT		0.00021	U	0.00021	U	0.00021	U
Perfluoro-1-heptanesulfonic acid (PFHpS)	~	~	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	NT		0.00017	U	0.00017	U	0.00017	U
Perfluoro-1-nonanesulfonic acid (PFNS)	~	~	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	NT		0.00014	U	0.00013	U	0.00013	U
Perfluoro-1-octanesulfonamide (FOSA)	~	~	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.00016	U	NT		0.00016	U	0.00016	U	0.00016	U
Perfluoro-1-pentanesulfonate (PFPeS)	~	~	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.00017	U	NT		0.00017	U	0.00017	U	0.00017	U
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	~	~	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	NT		0.00021	U	0.00021	U	0.00021	U
Perfluoro-4-oxapentanoic acid (PFMPA)	~	~	0.00007	U	0.00007	U	0.00007	U	0.00007	U	0.00007	U	NT		0.00007	U	0.00007	U	0.00007	U
Perfluoro-5-oxahexanoic acid (PFMBA)	~	~	0.00011	U	0.00011	U	0.00011	U	0.00011	U	0.00011	U	NT		0.00011	U	0.00010	U	0.00010	U
Perfluorobutanesulfonic acid (PFBS)	~	~	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	NT		0.00012	U	0.00012	U	0.00012	U
Perfluorodecanoic acid (PFDA)	~	~	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	NT		0.00021	U	0.00021	U	0.00021	U
Perfluorododecanesulfonic acid (PFDoS)	~	~	0.00018	U	0.00019	U	0.00019	U	0.00019	U	0.00018	U	NT		0.00018	U	0.00018	U	0.00018	U
Perfluorododecanoic acid (PFDoA)	~	~	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	NT		0.00018	U	0.00018	U	0.00018	U
Perfluoroheptanoic acid (PFHpA)	~	~	0.00011	U	0.00012	U	0.00012	U	0.00012	U	0.00011	U	NT		0.00012	U	0.00011	U	0.00011	U
Perfluorohexanesulfonic acid (PFHxS)	~	~	0.00020	U	0.00020	U	0.00020	U	0.00020	U	0.00020	U	NT		0.00020	U	0.00019	U	0.00019	U
Perfluorohexanoic acid (PFHxA)	~	~	0.00006	U	0.00006	U	0.00006	U	0.00006	U	0.00006	U	NT		0.00006	U	0.00006	U	0.00006	U
Perfluoro-n-butanoic acid (PFBA)	~	~	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	NT		0.00012	U	0.00012	U	0.00012	U
Perfluorononanoic acid (PFNA)	~	~	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.00021	U	NT		0.00021	U	0.00020	U	0.00021	U
Perfluorooctanesulfonic acid (PFOS)	3.700	44	0.00018	U	0.00018	U	0.00018	U	0.00018	U	0.00018	U	NT		0.00018	U	0.00018	U	0.00018	U
Perfluorooctanoic acid (PFOA)	1.100	33	0.00019	U	0.00019	U	0.00019	U	0.00019	U	0.00019	U	NT		0.00019	U	0.00019	U	0.00019	U
Perfluoropentanoic acid (PFPeA)	~	~	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.00012	U	NT		0.00012	U	0.00012	U	0.00012	U
Perfluorotetradecanoic acid (PFTA)	~	~	0.00011	U	0.00011	U	0.00011	U	0.00011	U	0.00011	U	NT		0.00011	U	0.00011	U	0.00011	U
Perfluorotridecanoic acid (PFTrDA)	~	~	0.00014	U	0.00014	U	0.00014	U	0.00014	U	0.00014	U	NT		0.00014	U	0.00014	U	0.00014	U
Perfluoroundecanoic acid (PFUnA)	~	~	0.00022	U	0.00022	U	0.00022	U	0.00022	U	0.00022	U	NT		0.00022	U	0.00021	U	0.00022	U

NOTES:
Any Regulatory Exceedences are color coded by Regulation
Gray Highlighted cells are MDL is above the applicable standard
Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
P=this flag is used for pesticide and PCB (Aroclor) target compounds when there is a % difference for detected concentrations that exceed method dictated limits between the two GC columns used for analysis
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte
🟩 Exceeds NYSDEC Part 375 Protection of Groundwater SCOs
🟦 Exceeds NYSDEC Part 375 Restricted Residential SCOs

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID York ID Sampling Date Client Matrix	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	EP-9 24H0334-01 8/6/2024 10:30:00 AM Soil		EP-10 24H0334-02 8/6/2024 10:40:00 AM Soil		EP-11 24G1704-01 7/26/2024 7:30:00 AM Soil		EP-12 24G1704-02 7/26/2024 7:45:00 AM Soil		EP-14 24H0334-03 8/6/2024 10:50:00 AM Soil		EP-15 24H0334-04 8/6/2024 11:00:00 AM Soil		EP-16 24G1704-03 7/26/2024 8:00:00 AM Soil		EP-17 24G0991-01 7/16/2024 10:00:00 AM Soil		EP-18 24G0991-02 7/16/2024 10:10:00 AM Soil	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
VOA, 8260 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
1,1,1,2-Tetrachloroethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,1,1-Trichloroethane	0.68	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,1,2,2-Tetrachloroethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,1,2-Trichloroethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,1-Dichloroethane	0.27	26	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,1-Dichloroethylene	0.33	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,1-Dichloropropylene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2,3-Trichlorobenzene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2,3-Trichloropropane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2,4-Trichlorobenzene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2,4-Trimethylbenzene	3.6	52	0.00350	J	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2-Dibromo-3-chloropropane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2-Dibromoethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2-Dichlorobenzene	1.1	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2-Dichloroethane	0.02	3.1	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,2-Dichloropropane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,3,5-Trimethylbenzene	8.4	52	0.0280		0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,3-Dichlorobenzene	2.4	49	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,3-Dichloropropane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,4-Dichlorobenzene	1.8	13	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
1,4-Dioxane	0.1	13	0.0410	U	0.0320	U	0.0490	U	0.0400	U	0.0440	U	0.0500	U	0.0380	U	0.0430	U	0.0290	U
2,2-Dichloropropane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
2-Butanone	0.12	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
2-Chlorotoluene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
2-Hexanone	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
4-Chlorotoluene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
4-Methyl-2-pentanone	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Acetone	0.05	100	0.00780	J	0.00320	U	0.00490	U	0.00610	J	0.00440	U	0.00500	U	0.00380	U	0.00890		0.00290	U
Acrolein	~	~	0.00410	U	0.00320	U	0.00490	U	0.00400	U	0.00440	U	0.00500	U	0.00380	U	0.00430	U	0.00290	U
Acrylonitrile	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Benzene	0.06	4.8	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Bromobenzene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Bromochloromethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Bromodichloromethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Bromoform	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Bromomethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Carbon disulfide	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Carbon tetrachloride	0.76	2.4	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Chlorobenzene	1.1	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Chloroethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Chloroform	0.37	49	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Chloromethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
cis-1,2-Dichloroethylene	0.25	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
cis-1,3-Dichloropropylene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Cyclohexane	~	~	0.0110		0.00160	U	0.00250	U	0.00200	U	0.00220	J	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Dibromochloromethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Dibromomethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Dichlorodifluoromethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Ethyl Benzene	1	41	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Hexachlorobutadiene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Isopropylbenzene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Methyl acetate	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Methyl tert-butyl ether (MTBE)	0.93	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Methylcyclohexane	~	~	0.00810		0.00160	U	0.00250	U	0.00200	U	0.00260	J	0.00250	U	0.00190	U	0.00320	J	0.00150	U
Methylene chloride	0.05	100	0.00410	U	0.00320	U	0.00490	U	0.00400	U	0.00440	U	0.00500	U	0.00380	U	0.00430	U	0.00290	U
n-Butylbenzene	12	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	J	0.00150	U
n-Propylbenzene	3.9	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
o-Xylene	~	~	0.0150		0.00160	U	0.00250	U	0.00430		0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
p- & m- Xylenes	~	~	0.00410	U	0.00320	U	0.00490	U	0.00400	U	0.00440	U	0.00500	U	0.00380	U	0.00430	U	0.00290	U
p-Isopropyltoluene	~	~	0.00200	U	0.00160	U	0.00250	U	0.0100		0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
sec-Butylbenzene	11	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Styrene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
tert-Butyl alcohol (TBA)	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
tert-Butylbenzene	5.9	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Tetrachloroethylene	1.3	19	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Toluene	0.7	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
trans-1,2-Dichloroethylene	0.19	100	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
trans-1,3-Dichloropropylene	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Trichloroethylene	0.47	21	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Trichlorofluoromethane	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Vinyl acetate	~	~	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Vinyl Chloride	0.02	0.9	0.00200	U	0.00160	U	0.00250	U	0.00200	U	0.00220	U	0.00250	U	0.00190	U	0.00210	U	0.00150	U
Xylenes, Total	1.6	100	0.0180		0.00480	U	0.00740	U	0.00590	U	0.00660	U	0.00750	U	0.00570	U	0.00640	U	0.00440	U

Table 3. Endpoint Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-9** **24H0334-01** **8/6/2024 10:30:00 AM** **Soil**		**EP-10** **24H0334-02** **8/6/2024 10:40:00 AM** **Soil**		**EP-11** **24G1704-01** **7/26/2024 7:30:00 AM** **Soil**		**EP-12** **24G1704-02** **7/26/2024 7:45:00 AM** **Soil**		**EP-14** **24H0334-03** **8/6/2024 10:50:00 AM** **Soil**		**EP-15** **24H0334-04** **8/6/2024 11:00:00 AM** **Soil**		**EP-16** **24G1704-03** **7/26/2024 8:00:00 AM** **Soil**		**EP-17** **24G0991-01** **7/16/2024 10:00:00 AM** **Soil**		**EP-18** **24G0991-02** **7/16/2024 10:10:00 AM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatiles, 1,4-Dioxane 8270 SIM-Soil	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
1,4-Dioxane	13	13	0.0194	U	0.0183	U	0.0183	U	0.0196	U	0.0194	U	0.0183	U	0.0196	U	0.0190	U	0.0189	U
SVOA, 8270 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			2		2		2		2		2		2		2		2		2	
1,1-Biphenyl	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
1,2,4,5-Tetrachlorobenzene	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
1,2,4-Trichlorobenzene	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
1,2-Dichlorobenzene	1.1	100	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
1,2-Diphenylhydrazine (as Azobenzene)	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
1,3-Dichlorobenzene	2.4	49	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
1,4-Dichlorobenzene	1.8	13	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2,3,4,6-Tetrachlorophenol	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
2,4,5-Trichlorophenol	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2,4,6-Trichlorophenol	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2,4-Dichlorophenol	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2,4-Dimethylphenol	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2,4-Dinitrophenol	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
2,4-Dinitrotoluene	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2,6-Dinitrotoluene	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2-Chloronaphthalene	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2-Chlorophenol	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2-Methylnaphthalene	~	~	0.0467	U	0.0476	U	0.0463	U	0.308	D	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2-Methylphenol	0.33	100	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
2-Nitroaniline	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
2-Nitrophenol	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
3- & 4-Methylphenols	0.33	100	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
3,3-Dichlorobenzidine	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
3-Nitroaniline	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
4,6-Dinitro-2-methylphenol	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
4-Bromophenyl phenyl ether	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
4-Chloro-3-methylphenol	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
4-Chloroaniline	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
4-Chlorophenyl phenyl ether	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
4-Nitroaniline	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
4-Nitrophenol	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
Acenaphthene	98	100	0.0467	U	0.0476	U	0.0463	U	0.126	D	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Acenaphthylene	107	100	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Acetophenone	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Aniline	~	~	0.187	U	0.190	U	0.185	U	0.182	U	0.184	U	0.184	U	0.184	U	0.182	U	0.189	U
Anthracene	1000	100	0.0467	U	0.0476	U	0.0463	U	0.0721	JD	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Atrazine	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzaldehyde	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzidine	~	~	0.187	U	0.190	U	0.185	U	0.182	U	0.184	U	0.184	U	0.184	U	0.182	U	0.189	U
Benzo(a)anthracene	1	1	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0535	JD	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzo(a)pyrene	22	1	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0682	JD	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzo(b)fluoranthene	1.7	1	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzo(g,h,i)perylene	1000	100	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzo(k)fluoranthene	1.7	3.9	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0557	JD	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzoic acid	~	~	0.0467	U	0.0476	U	0.0463	U	0.605	D	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzyl alcohol	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Benzyl butyl phthalate	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0462	JD	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Bis(2-chloroethoxy)methane	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Bis(2-chloroethyl)ether	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Bis(2-chloroisopropyl)ether	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Bis(2-ethylhexyl)phthalate	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Caprolactam	~	~	0.0932	U	0.0949	U	0.0924	U	0.0911	U	0.0917	U	0.0919	U	0.0918	U	0.0909	U	0.0943	U
Carbazole	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Chrysene	1	3.9	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0506	JD	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Dibenzo(a,h)anthracene	1000	0.33	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Dibenzofuran	210	59	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Diethyl phthalate	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Dimethyl phthalate	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Di-n-butyl phthalate	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Di-n-octyl phthalate	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Fluoranthene	1000	100	0.0467	U	0.0835	JD	0.0463	U	0.0473	JD	0.111	D	0.0460	U	0.0460	U	0.0552	JD	0.0473	U
Fluorene	386	100	0.0467	U	0.0476	U	0.0463	U	0.188	D	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Hexachlorobenzene	3.2	1.2	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Hexachlorobutadiene	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Hexachlorocyclopentadiene	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Hexachloroethane	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Isophorone	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Naphthalene	12	100	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Nitrobenzene	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
N-Nitrosodimethylamine	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
N-nitroso-di-n-propylamine	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
N-Nitrosodiphenylamine	~	~	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Pentachlorophenol	0.8	6.7	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Phenanthrene	1000	100	0.0467	U	0.0607	JD	0.0463	U	0.460	D	0.0460	U	0.0460	U	0.0460	U	0.0647	JD	0.0473	U
Phenol	0.33	100	0.0467	U	0.0476	U	0.0463	U	0.0457	U	0.0460	U	0.0460	U	0.0460	U	0.0455	U	0.0473	U
Pyrene	1000	100	0.0467	U	0.0873	JD	0.0463	U	0.0648	JD	0.0997	D	0.0460	U	0.0460	U	0.0777	JD	0.0473	U
Pyridine	~	~	0.187	U	0.190	U	0.185	U	0.182	U	0.184	U	0.184	U	0.184	U	0.182	U	0.189	U

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-9** **24H0334-01** **8/6/2024 10:30:00 AM** **Soil**		**EP-10** **24H0334-02** **8/6/2024 10:40:00 AM** **Soil**		**EP-11** **24G1704-01** **7/26/2024 7:30:00 AM** **Soil**		**EP-12** **24G1704-02** **7/26/2024 7:45:00 AM** **Soil**		**EP-14** **24H0334-03** **8/6/2024 10:50:00 AM** **Soil**		**EP-15** **24H0334-04** **8/6/2024 11:00:00 AM** **Soil**		**EP-16** **24G1704-03** **7/26/2024 8:00:00 AM** **Soil**		**EP-17** **24G0991-01** **7/16/2024 10:00:00 AM** **Soil**		**EP-18** **24G0991-02** **7/16/2024 10:10:00 AM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PEST, 8081 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			5		5		5		5		5		5		5		5		5	
4,4'-DDD	14	13	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
4,4'-DDE	17	8.9	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
4,4'-DDT	136	7.9	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Aldrin	0.19	0.097	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
alpha-BHC	0.02	0.48	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
alpha-Chlordane	2.9	4.2	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
beta-BHC	0.09	0.36	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Chlordane, total	~	~	0.0369	U	0.0376	U	0.0366	U	0.0358	U	0.0363	U	0.0364	U	0.0361	U	0.0363	U	0.0370	U
delta-BHC	0.25	100	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Dieldrin	0.1	0.2	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Endosulfan I	102	24	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Endosulfan II	102	24	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Endosulfan sulfate	1000	24	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Endrin	0.06	11	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Endrin aldehyde	~	~	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Endrin ketone	~	~	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
gamma-BHC (Lindane)	0.1	1.3	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
gamma-Chlordane	~	~	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Heptachlor	0.38	2.1	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Heptachlor epoxide	~	~	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Methoxychlor	~	~	0.00184	U	0.00188	U	0.00183	U	0.00179	U	0.00181	U	0.00182	U	0.00180	U	0.00182	U	0.00185	U
Toxaphene	~	~	0.184	U	0.188	U	0.183	U	0.179	U	0.181	U	0.182	U	0.180	U	0.182	U	0.185	U
Metals, Target Analyte	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Aluminum	~	~	9,700		8,620		8,410		9,870		10,900		9,330		8,540		8,640		5,590	
Antimony	~	~	2.370	U	2.410	U	2.320	U	2.280	U	2.330	U	2.330	U	2.300	U	2.320	U	2.360	U
Arsenic	16	16	3.010		2.450		2.690		2.470		2.890		2.320		2.730		2.730		1.890	
Barium	820	400	64.500		59.800		59.900		77		67.900		68.700		56.500		59.400		36.600	
Beryllium	47	72	0.161		0.0870		0.176		0.210		0.177		0.0750		0.212		0.251		0.161	
Cadmium	7.5	4.3	0.284	U	0.289	U	0.278	U	0.274	U	0.280	U	0.280	U	0.276	U	0.279	U	0.284	U
Calcium	~	~	13,500		9,310		14,100		15,700		5,100		13,700		13,300		10,100		20,600	
Chromium	~	~	22.600		21.400		18		22.800		23.300		22.900		16.700		18.800		10.800	
Cobalt	~	~	7.760		7.250		9.050		8.090		8.930		8.340		7.450		8.040		6.110	
Copper	1720	270	24.900		20.700		23.700		25.100		35.900		20.900		21		22.200		17.300	
Iron	~	~	16,800		15,000		16,400		17,800		17,600		16,600		16,800		16,200		10,900	
Lead	450	400	35.300		46.700		9.430		33.100		38.200		11.100		17.300		10.600		10.500	
Magnesium	~	~	5,310		4,200		7,000		7,820		4,730		7,940		6,370		6,460		5,830	
Manganese	2000	2000	253		196		316		330		277		355		372		450		306	
Nickel	130	310	17.700		15.600		18.100		18.600		20.100		20.400		18		17.500		13.900	
Potassium	~	~	1,940	B	1,680	B	1,810		2,240		1,870	B	2,120	B	1,640		1,820		1,120	
Selenium	4	180	2.370	U	2.410	U	2.320	U	2.280	U	2.330	U	2.330	U	2.300	U	2.320	U	2.360	U
Silver	8.3	180	0.477	U	0.486	U	0.467	U	0.460	U	0.470	U	0.470	U	0.464	U	0.468	U	0.477	U
Sodium	~	~	323		297		210		224		322		322		164		133		172	
Thallium	~	~	2.370	U	2.410	U	2.320	U	2.280	U	2.330	U	2.330	U	2.300	U	2.320	U	2.360	U
Vanadium	~	~	25.700		24.900		22.900		26.800		28.300		25.700		22.100		23.800		14.100	
Zinc	2480	10000	54.900		63.500		35		54.100		51.700		40		38.900		38		29.200	
Mercury by 7473	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Mercury	0.730	0.81	0.0695		0.103		0.0333	U	0.0356		0.118		0.0336	U	0.0331	U	0.153		0.0340	U
Chromium, Hexavalent	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Chromium, Hexavalent	19	110	0.568	U	0.579	U	0.556	U	0.548	U	0.559	U	0.560	U	0.552	U	0.558	U	0.567	U
Chromium, Trivalent	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg			
Dilution Factor			1		1		1		1		1		1		1		1			
Chromium, Trivalent	~	180	22.032		20.821		17.444		22.252		22.741		22.340		16.148		18.242		10.233	
Cyanide, Total	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Cyanide, total	40	27	0.568	U	0.579	U	0.556	U	0.548	U	0.559	U	0.560	U	0.552	U	0.558	U	0.567	U
Total Solids			%		%		%		%		%		%		%		%		%	
Dilution Factor			1		1		1		1		1		1		1		1		1	
% Solids	~	~	88		86.400		90		91.200		89.400		89.300		90.600		89.700		88.100	

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID York ID Sampling Date Client Matrix	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	EP-9 24H0334-01 8/6/2024 10:30:00 AM Soil		EP-10 24H0334-02 8/6/2024 10:40:00 AM Soil		EP-11 24G1704-01 7/26/2024 7:30:00 AM Soil		EP-12 24G1704-02 7/26/2024 7:45:00 AM Soil		EP-14 24H0334-03 8/6/2024 10:50:00 AM Soil		EP-15 24H0334-04 8/6/2024 11:00:00 AM Soil		EP-16 24G1704-03 7/26/2024 8:00:00 AM Soil		EP-17 24G0991-01 7/16/2024 10:00:00 AM Soil		EP-18 24G0991-02 7/16/2024 10:10:00 AM Soil	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PCB, 8082 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Aroclor 1016	~	~	0.0186	U	0.0190	U	0.0185	U	0.0181	U	0.0183	U	0.0184	U	0.0182	U	0.0183	U	0.0187	U
Aroclor 1221	~	~	0.0186	U	0.0190	U	0.0185	U	0.0181	U	0.0183	U	0.0184	U	0.0182	U	0.0183	U	0.0187	U
Aroclor 1232	~	~	0.0186	U	0.0190	U	0.0185	U	0.0181	U	0.0183	U	0.0184	U	0.0182	U	0.0183	U	0.0187	U
Aroclor 1242	~	~	0.0186	U	0.0190	U	0.0185	U	0.0181	U	0.0183	U	0.0184	U	0.0182	U	0.0183	U	0.0187	U
Aroclor 1248	~	~	0.0186	U	0.0190	U	0.0185	U	0.0181	U	0.0183	U	0.0184	U	0.0182	U	0.0183	U	0.0187	U
Aroclor 1254	~	~	0.0186	U	0.0190	U	0.0185	U	0.0181	U	0.0183	U	0.0184	U	0.0182	U	0.0183	U	0.0187	U
Aroclor 1260	~	~	0.0186	U	0.0190	U	0.0185	U	0.0181	U	0.0183	U	0.0184	U	0.0182	U	0.0183	U	0.0187	U
Total PCBs	3.2	1	0.0186	U	0.0190	U	0.0185	U	0.0181	U	0.0183	U	0.0184	U	0.0182	U	0.0183	U	0.0187	U
PFAS, EPA 1633 Target List			ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		mg/kg		mg/kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
11CL-PF3OUdS	~	~	0.593	J	0.348	U	0.341	U	0.334	U	0.525	J	0.533	J	0.335	U	0.00034	U	0.00035	U
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 F	~	~	0.861	U	0.844	U	0.829	U	0.811	U	0.797	U	0.805	U	0.814	U	0.00083	U	0.00084	U
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 F	~	~	0.679	U	0.665	U	0.653	U	0.639	U	0.628	U	0.635	U	0.641	U	0.00066	U	0.00066	U
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 F	~	~	0.679	U	0.665	U	0.653	U	0.639	U	0.628	U	0.635	U	0.641	U	0.00066	U	0.00066	U
3-Perfluoroheptyl propanoic acid (FHpPA)	~	~	1.710	U	1.680	U	1.650	U	1.610	U	1.580	U	1.600	U	1.620	U	0.00166	U	0.00167	U
3-Perfluoropentyl propanoic acid (FPePA)	~	~	2.390	U	2.350	U	2.300	U	2.250	U	2.210	U	2.240	U	2.260	U	0.00232	U	0.00233	U
3-Perfluoropropyl propanoic acid (FPrPA)	~	~	0.723	U	0.709	U	0.696	U	0.681	U	0.669	U	0.676	U	0.683	U	0.00070	U	0.00071	U
9CL-PF3ONS	~	~	0.281	U	0.275	U	0.270	U	0.264	U	0.260	U	0.262	U	0.265	U	0.00027	U	0.00027	U
ADONA	~	~	0.199	U	0.194	U	0.191	U	0.187	U	0.184	U	0.186	U	0.188	U	0.00019	U	0.00019	U
HFPO-DA (Gen-X)	~	~	0.694	U	0.680	U	0.667	U	0.653	U	0.642	U	0.649	U	0.655	U	0.00067	U	0.00068	U
N-EtFOSA	~	~	0.226	U	0.221	U	0.217	U	0.213	U	0.209	U	0.211	U	0.213	U	0.00022	U	0.00022	U
N-EtFOSAA	~	~	0.221	U	0.217	U	0.213	U	0.208	U	0.205	U	0.207	U	0.209	U	0.00021	U	0.00022	U
N-EtFOSE	~	~	0.795	U	0.779	U	0.765	U	0.749	U	0.736	U	0.743	U	0.751	U	0.00077	U	0.00078	U
N-MeFOSA	~	~	0.205	U	0.201	U	0.198	U	0.193	U	0.190	U	0.192	U	0.194	U	0.00020	U	0.00020	U
N-MeFOSAA	~	~	0.169	U	0.165	U	0.162	U	0.159	U	0.156	U	0.158	U	0.159	U	0.00016	U	0.00017	U
N-MeFOSE	~	~	0.697	U	0.683	U	0.671	U	0.656	U	0.645	U	0.652	U	0.658	U	0.00068	U	0.00068	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	~	~	0.159	U	0.155	U	0.153	U	0.149	U	0.147	U	0.148	U	0.150	U	0.00015	U	0.00016	U
Perfluoro-1-decanesulfonic acid (PFDS)	~	~	0.218	U	0.213	U	0.210	U	0.205	U	0.202	U	0.204	U	0.206	U	0.00021	U	0.00021	U
Perfluoro-1-heptanesulfonic acid (PFHpS)	~	~	0.177	U	0.173	U	0.170	U	0.166	U	0.164	U	0.165	U	0.167	U	0.00017	U	0.00017	U
Perfluoro-1-nonanesulfonic acid (PFNS)	~	~	0.141	U	0.139	U	0.136	U	0.133	U	0.131	U	0.132	U	0.134	U	0.00014	U	0.00014	U
Perfluoro-1-octanesulfonamide (FOSA)	~	~	0.167	U	0.163	U	0.160	U	0.157	U	0.154	U	0.156	U	0.157	U	0.00016	U	0.00016	U
Perfluoro-1-pentanesulfonate (PFPeS)	~	~	0.179	U	0.175	U	0.172	U	0.169	U	0.166	U	0.167	U	0.169	U	0.00017	U	0.00018	U
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	~	~	0.220	U	0.216	U	0.212	U	0.207	U	0.204	U	0.206	U	0.208	U	0.00021	U	0.00022	U
Perfluoro-4-oxapentanoic acid (PFMPA)	~	~	0.0707	U	0.0693	U	0.0681	U	0.0666	U	0.0655	U	0.0661	U	0.0668	U	0.00007	U	0.00007	U
Perfluoro-5-oxahexanoic acid (PFMBA)	~	~	0.110	U	0.107	U	0.105	U	0.103	U	0.101	U	0.102	U	0.103	U	0.00011	U	0.00011	U
Perfluorobutanesulfonic acid (PFBS)	~	~	0.127	U	0.124	U	0.122	U	0.119	U	0.117	U	0.118	U	0.120	U	0.00012	U	0.00012	U
Perfluorodecanoic acid (PFDA)	~	~	0.218	U	0.213	U	0.210	U	0.205	U	0.202	U	0.204	U	0.206	U	0.00021	U	0.00021	U
Perfluorododecanesulfonic acid (PFDoS)	~	~	0.193	U	0.189	U	0.186	U	0.181	U	0.178	U	0.180	U	0.182	U	0.00019	U	0.00019	U
Perfluorododecanoic acid (PFDoA)	~	~	0.186	U	0.182	U	0.179	U	0.175	U	0.172	U	0.174	U	0.176	U	0.00018	U	0.00018	U
Perfluoroheptanoic acid (PFHpA)	~	~	0.120	U	0.117	U	0.115	U	0.113	U	0.111	U	0.112	U	0.113	U	0.00012	U	0.00012	U
Perfluorohexanesulfonic acid (PFHxS)	~	~	0.204	U	0.200	U	0.196	U	0.192	U	0.189	U	0.191	U	0.193	U	0.00020	U	0.00020	U
Perfluorohexanoic acid (PFHxA)	~	~	0.0605	U	0.0592	U	0.0582	U	0.0569	U	0.0560	U	0.0565	U	0.0571	U	0.00006	U	0.00006	U
Perfluoro-n-butanoic acid (PFBA)	~	~	0.124	U	0.122	U	0.120	U	0.117	U	0.115	U	0.116	U	0.117	U	0.00012	U	0.00012	U
Perfluorononanoic acid (PFNA)	~	~	0.216	U	0.211	U	0.207	U	0.203	U	0.200	U	0.202	U	0.204	U	0.00021	U	0.00021	U
Perfluorooctanesulfonic acid (PFOS)	3.700	44	0.191	U	0.187	U	0.183	U	0.179	U	0.176	U	0.178	U	0.180	U	0.00018	U	0.00019	U
Perfluorooctanoic acid (PFOA)	1.100	33	0.196	U	0.192	U	0.189	U	0.185	U	0.182	U	0.183	U	0.185	U	0.00019	U	0.00019	U
Perfluoropentanoic acid (PFPeA)	~	~	0.124	U	0.122	U	0.120	U	0.117	U	0.115	U	0.116	U	0.117	U	0.00012	U	0.00012	U
Perfluorotetradecanoic acid (PFTA)	~	~	0.118	U	0.115	U	0.113	U	0.111	U	0.109	U	0.110	U	0.111	U	0.00011	U	0.00012	U
Perfluorotridecanoic acid (PFTrDA)	~	~	0.143	U	0.140	U	0.137	U	0.134	U	0.132	U	0.133	U	0.135	U	0.00014	U	0.00014	U
Perfluoroundecanoic acid (PFUnA)	~	~	0.226	U	0.221	U	0.217	U	0.213	U	0.209	U	0.211	U	0.213	U	0.00022	U	0.00022	U

NOTES:

Any Regulatory Exceedences are color coded by Regulation

Gray Highlighted cells are MDL is above the applicable standard

Q is the Qualifier Column with definitions as follows:

D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit)
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
P=this flag is used for pesticide and PCB (Aroclor) target compounds when there is a % difference for
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte

🟩 Exceeds NYSDEC Part 375 Protection of Groundwater SCOs
🟦 Exceeds NYSDEC Part 375 Restricted Residential SCOs

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-19** **24G0991-03** **7/16/2024 10:20:00 AM** **Soil**		**EP-20** **24C1207-01** **3/19/2024 3:00:00 PM** **Soil**		**EP-21** **24D0097-01** **4/1/2024 3:00:00 PM** **Soil**		**EP-22** **24D0097-02** **4/1/2024 3:00:00 PM** **Soil**		**EP-23** **24E0990-01** **5/14/2024 10:40:00 AM** **Soil**		**EP-24** **24F1760-01** **6/26/2024 9:55:00 AM** **Soil**		**EP-25** **24F1760-02** **6/26/2024 10:10:00 AM** **Soil**		**EP-26** **24C1207-02** **3/19/2024 3:00:00 PM** **Soil**		**EP-27** **24D0112-03** **4/1/2024 12:30:00 PM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
VOA, 8260 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
1,1,1,2-Tetrachloroethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,1,1-Trichloroethane	0.68	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,1,2,2-Tetrachloroethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,1,2-Trichloroethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,1-Dichloroethane	0.27	26	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,1-Dichloroethylene	0.33	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,1-Dichloropropylene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2,3-Trichlorobenzene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2,3-Trichloropropane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2,4-Trichlorobenzene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2,4-Trimethylbenzene	3.6	52	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2-Dibromo-3-chloropropane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2-Dibromoethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2-Dichlorobenzene	1.1	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2-Dichloroethane	0.02	3.1	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,2-Dichloropropane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,3,5-Trimethylbenzene	8.4	52	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,3-Dichlorobenzene	2.4	49	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,3-Dichloropropane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,4-Dichlorobenzene	1.8	13	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
1,4-Dioxane	0.1	13	0.0380	U	0.0220	U	0.0240	U	0.0280	U			0.0290	U	0.0300	U	0.0190	U	0.0240	U
2,2-Dichloropropane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
2-Butanone	0.12	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
2-Chlorotoluene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
2-Hexanone	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
4-Chlorotoluene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
4-Methyl-2-pentanone	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Acetone	0.05	100	0.00410	J	0.0150		0.00240	U	0.00280	U	0.00450	U	0.00290	U	0.00300	U	0.00200	J	0.00250	J
Acrolein	~	~	0.00380	U	0.00220	U	0.00240	U	0.00280	U	0.00450	U	0.00290	U	0.00300	U	0.00190	U	0.00240	U
Acrylonitrile	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Benzene	0.06	4.8	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Bromobenzene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Bromochloromethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Bromodichloromethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Bromoform	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Bromomethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Carbon disulfide	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Carbon tetrachloride	0.76	2.4	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Chlorobenzene	1.1	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Chloroethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Chloroform	0.37	49	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Chloromethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
cis-1,2-Dichloroethylene	0.25	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
cis-1,3-Dichloropropylene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Cyclohexane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Dibromochloromethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Dibromomethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Dichlorodifluoromethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Ethyl Benzene	1	41	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Hexachlorobutadiene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Isopropylbenzene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Methyl acetate	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00310	
Methyl tert-butyl ether (MTBE)	0.93	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Methylcyclohexane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Methylene chloride	0.05	100	0.00380	U	0.00510		0.00240	U	0.00280	U	0.00450	U	0.00290	U	0.00300	U	0.00210	J	0.00240	U
n-Butylbenzene	12	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
n-Propylbenzene	3.9	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
o-Xylene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
p- & m- Xylenes	~	~	0.00380	U	0.00220	U	0.00240	U	0.00280	U	0.00450	U	0.00290	U	0.00300	U	0.00190	U	0.00240	U
p-Isopropyltoluene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
sec-Butylbenzene	11	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Styrene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
tert-Butyl alcohol (TBA)	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
tert-Butylbenzene	5.9	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Tetrachloroethylene	1.3	19	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Toluene	0.7	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
trans-1,2-Dichloroethylene	0.19	100	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
trans-1,3-Dichloropropylene	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Trichloroethylene	0.47	21	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Trichlorofluoromethane	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Vinyl acetate	~	~	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Vinyl Chloride	0.02	0.9	0.00190	U	0.00110	U	0.00120	U	0.00140	U	0.00230	U	0.00140	U	0.00150	U	0.00096	U	0.00120	U
Xylenes, Total	1.6	100	0.00570	U	0.00330	U	0.00370	U	0.00430	U	0.00680	U	0.00430	U	0.00460	U	0.00290	U	0.00360	U

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-19** **24G0991-03** **7/16/2024 10:20:00 AM** **Soil**		**EP-20** **24C1207-01** **3/19/2024 3:00:00 PM** **Soil**		**EP-21** **24D0097-01** **4/1/2024 3:00:00 PM** **Soil**		**EP-22** **24D0097-02** **4/1/2024 3:00:00 PM** **Soil**		**EP-23** **24E0990-01** **5/14/2024 10:40:00 AM** **Soil**		**EP-24** **24F1760-01** **6/26/2024 9:55:00 AM** **Soil**		**EP-25** **24F1760-02** **6/26/2024 10:10:00 AM** **Soil**		**EP-26** **24C1207-02** **3/19/2024 3:00:00 PM** **Soil**		**EP-27** **24D0112-03** **4/1/2024 12:30:00 PM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatiles, 1,4-Dioxane 8270 SIM-Soil	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
1,4-Dioxane	13	13	0.0187	U	0.0220	U	0.0192	U	0.0351	U	0.0450	U	0.0189	U	0.0190	U	0.0190	U	0.0194	U
SVOA, 8270 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			2		2		2		2		2		2		2		2		2	
1,1-Biphenyl	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
1,2,4,5-Tetrachlorobenzene	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
1,2,4-Trichlorobenzene	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
1,2-Dichlorobenzene	1.1	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
1,2-Diphenylhydrazine (as Azobenzene)	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
1,3-Dichlorobenzene	2.4	49	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
1,4-Dichlorobenzene	1.8	13	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2,3,4,6-Tetrachlorophenol	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
2,4,5-Trichlorophenol	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2,4,6-Trichlorophenol	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2,4-Dichlorophenol	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2,4-Dimethylphenol	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2,4-Dinitrophenol	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
2,4-Dinitrotoluene	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2,6-Dinitrotoluene	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2-Chloronaphthalene	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2-Chlorophenol	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2-Methylnaphthalene	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2-Methylphenol	0.33	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
2-Nitroaniline	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
2-Nitrophenol	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
3- & 4-Methylphenols	0.33	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
3,3-Dichlorobenzidine	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
3-Nitroaniline	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
4,6-Dinitro-2-methylphenol	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
4-Bromophenyl phenyl ether	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
4-Chloro-3-methylphenol	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
4-Chloroaniline	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
4-Chlorophenyl phenyl ether	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
4-Nitroaniline	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
4-Nitrophenol	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
Acenaphthene	98	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Acenaphthylene	107	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Acetophenone	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Aniline	~	~	0.179	U	0.183	U	0.180	U	0.200	U	0.180	U	0.177	U	0.168	U	0.186	U	0.185	U
Anthracene	1000	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Atrazine	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzaldehyde	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzidine	~	~	0.179	U	0.183	U	0.180	U	0.200	U	0.180	U	0.177	U	0.168	U	0.186	U	0.185	U
Benzo(a)anthracene	1	1	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzo(a)pyrene	22	1	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzo(b)fluoranthene	1.7	1	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzo(g,h,i)perylene	1000	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzo(k)fluoranthene	1.7	3.9	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzoic acid	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzyl alcohol	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Benzyl butyl phthalate	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Bis(2-chloroethoxy)methane	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Bis(2-chloroethyl)ether	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Bis(2-chloroisopropyl)ether	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Bis(2-ethylhexyl)phthalate	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Caprolactam	~	~	0.0895	U	0.0912	U	0.0898	U	0.0997	U	0.0897	U	0.0885	U	0.0839	U	0.0927	U	0.0923	U
Carbazole	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Chrysene	1	3.9	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Dibenzo(a,h)anthracene	1000	0.33	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Dibenzofuran	210	59	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Diethyl phthalate	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Dimethyl phthalate	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Di-n-butyl phthalate	~	~	0.0449	U	0.0457	U	0.0704	JD	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Di-n-octyl phthalate	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Fluoranthene	1000	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Fluorene	386	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Hexachlorobenzene	3.2	1.2	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Hexachlorobutadiene	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Hexachlorocyclopentadiene	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Hexachloroethane	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Isophorone	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Naphthalene	12	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Nitrobenzene	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
N-Nitrosodimethylamine	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
N-nitroso-di-n-propylamine	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
N-Nitrosodiphenylamine	~	~	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Pentachlorophenol	0.8	6.7	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Phenanthrene	1000	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Phenol	0.33	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Pyrene	1000	100	0.0449	U	0.0457	U	0.0450	U	0.0500	U	0.0450	U	0.0444	U	0.0421	U	0.0465	U	0.0463	U
Pyridine	~	~	0.179	U	0.183	U	0.180	U	0.200	U	0.180	U	0.177	U	0.168	U	0.186	U	0.185	U

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-19** **24G0991-03** **7/16/2024 10:20:00 AM** **Soil**		**EP-20** **24C1207-01** **3/19/2024 3:00:00 PM** **Soil**		**EP-21** **24D0097-01** **4/1/2024 3:00:00 PM** **Soil**		**EP-22** **24D0097-02** **4/1/2024 3:00:00 PM** **Soil**		**EP-23** **24E0990-01** **5/14/2024 10:40:00 AM** **Soil**		**EP-24** **24F1760-01** **6/26/2024 9:55:00 AM** **Soil**		**EP-25** **24F1760-02** **6/26/2024 10:10:00 AM** **Soil**		**EP-26** **24C1207-02** **3/19/2024 3:00:00 PM** **Soil**		**EP-27** **24D0112-03** **4/1/2024 12:30:00 PM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PEST, 8081 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			5		5		5		5		5		5		5		5		5	
4,4'-DDD	14	13	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
4,4'-DDE	17	8.9	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
4,4'-DDT	136	7.9	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Aldrin	0.19	0.097	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
alpha-BHC	0.02	0.48	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
alpha-Chlordane	2.9	4.2	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.0148	D	0.00179	U	0.00168	U	0.00219	D	0.00184	U
beta-BHC	0.09	0.36	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Chlordane, total	~	~	0.0361	U	0.0369	U	0.0347	U	0.0398	U	0.148	D	0.0358	U	0.0335	U	0.0369	U	0.0368	U
delta-BHC	0.25	100	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Dieldrin	0.1	0.2	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00886	D	0.00366	D	0.00185	U	0.00184	U
Endosulfan I	102	24	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Endosulfan II	102	24	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Endosulfan sulfate	1000	24	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Endrin	0.06	11	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Endrin aldehyde	~	~	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Endrin ketone	~	~	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
gamma-BHC (Lindane)	0.1	1.3	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
gamma-Chlordane	~	~	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.0168	D	0.00179	U	0.00168	U	0.00311	D	0.00184	U
Heptachlor	0.38	2.1	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00323	D	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Heptachlor epoxide	~	~	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Methoxychlor	~	~	0.00181	U	0.00185	U	0.00174	U	0.00199	U	0.00179	U	0.00179	U	0.00168	U	0.00185	U	0.00184	U
Toxaphene	~	~	0.181	U	0.185	U	0.174	U	0.199	U	0.179	U	0.179	U	0.168	U	0.185	U	0.184	U
Metals, Target Analyte	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Aluminum	~	~	10,500		10,500		7,890		11,300		8,380		12,100		11,500		9,080		10,800	
Antimony	~	~	2.290	U	2.340	U	2.250	U	2.530	U	2.260	U	2.280	U	2.160	U	2.340	U	2.340	U
Arsenic	16	16	2.630		3.980		3.090		3.610		3.100		2.580		2.950		4.270		4.420	
Barium	820	400	67.200		155		49.500		64.100		48.400		66.600		67.300		69.400		74.100	
Beryllium	47	72	0.293		0.0470	U	0.0450	U	0.0510	U	0.0460	U	0.310		0.320		0.0470	U	0.0470	U
Cadmium	7.5	4.3	0.275	U	0.442		0.270	U	0.304	U	0.272	U	0.273	U	0.259	U	0.343		0.280	U
Calcium	~	~	4,520		4,150		6,060		5,140		4,900		7,820		5,740		6,620		4,070	
Chromium	~	~	21.800		23.200		15.900		19.800		17.100		23		24.400		20.300		22.300	
Cobalt	~	~	8.220		7.610		6.120		7.400		6.380		8.830		9.360		7.910		8.260	
Copper	1720	270	22.800		24.300		17.600		21.200		17.400		27		45.400		23		23.100	
Iron	~	~	17,100		16,800		13,000		15,800		13,200		17,200		18,700		16,500		17,300	
Lead	450	400	15.700		8.010		4.710		28.100		8.930		49.300		16		8.510		8.870	
Magnesium	~	~	4,910		5,390	B	4,400		4,640		4,410		7,440		5,870		5,090	B	4,300	
Manganese	2000	2000	350		343		276		356		305		353		346		364		356	
Nickel	130	310	19		17.400		14.900		15.500		15.200		16.500		20		18.700		19.100	
Potassium	~	~	1,800		2,470		1,810		2,080		1,530		1,650	B	2,250	B	1,970		2,720	
Selenium	4	180	2.290	U	2.340	U	2.250	U	2.530	U	2.260	U	2.280	U	2.160	U	2.340	U	2.340	U
Silver	8.3	180	0.461	U	0.472	U	0.454	U	0.511	U	0.456	U	0.459	U	0.435	U	0.472	U	0.471	U
Sodium	~	~	123		651		176		158		107		167		165		272		212	
Thallium	~	~	2.290	U	2.340	U	2.250	U	2.530	U	2.260	U	2.280	U	2.160	U	2.340	U	2.340	U
Vanadium	~	~	26.300		26.200		19.700		24.700		20.500		27.700		29.800		24.100		26.300	
Zinc	2480	10000	44		56.500		28.400		47.400		33.100		43.700		46.800		41.200		39.200	
Mercury by 7473	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Mercury	0.730	0.81	0.0330	U	0.0337	U	0.0357	U	0.0401	U	0.0326	U	0.0700		0.0311	U	0.0449		0.0370	U
Chromium, Hexavalent	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Chromium, Hexavalent	19	110	0.549	U	0.719		0.540	U	0.608	U	0.543	U	0.700		0.663		1.260		0.561	U
Chromium, Trivalent	mg/Kg	mg/Kg			mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor					1		1		1		1		1		1		1		1	
Chromium, Trivalent	~	180	21.251		=		15.360		19.192		17.100		23		24.400		16.100		21.739	
Cyanide, Total	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Cyanide, total	40	27	0.549	U	0.561	U	0.540	U	0.608	U	0.543	U	0.546	U	0.518	U	0.561	U	0.561	U
Total Solids			%		%		%		%		%		%		%		%		%	
Dilution Factor			1		1		1		1		1		1		1		1		1	
% Solids	~	~	91		89.100		92.500		82.300		92		91.500		96.500		89.100		89.200	

Table 3. Endpoint Sample Results
Enclave on 241st Development

Sample ID York ID Sampling Date Client Matrix	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	EP-19 24G0991-03 7/16/2024 10:20:00 AM Soil		EP-20 24C1207-01 3/19/2024 3:00:00 PM Soil		EP-21 24D0097-01 4/1/2024 3:00:00 PM Soil		EP-22 24D0097-02 4/1/2024 3:00:00 PM Soil		EP-23 24E0990-01 5/14/2024 10:40:00 AM Soil		EP-24 24F1760-01 6/26/2024 9:55:00 AM Soil		EP-25 24F1760-02 6/26/2024 10:10:00 AM Soil		EP-26 24C1207-02 3/19/2024 3:00:00 PM Soil		EP-27 24D0112-03 4/1/2024 12:30:00 PM Soil	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PCB, 8082 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Aroclor 1016	~	~	0.0182	U	0.0186	U	0.0175	U	0.0201	U	0.0180	U	0.0181	U	0.0169	U	0.0186	U	0.0186	U
Aroclor 1221	~	~	0.0182	U	0.0186	U	0.0175	U	0.0201	U	0.0180	U	0.0181	U	0.0169	U	0.0186	U	0.0186	U
Aroclor 1232	~	~	0.0182	U	0.0186	U	0.0175	U	0.0201	U	0.0180	U	0.0181	U	0.0169	U	0.0186	U	0.0186	U
Aroclor 1242	~	~	0.0182	U	0.0186	U	0.0175	U	0.0201	U	0.0180	U	0.0181	U	0.0169	U	0.0186	U	0.0186	U
Aroclor 1248	~	~	0.0182	U	0.0186	U	0.0175	U	0.0201	U	0.0180	U	0.0181	U	0.0169	U	0.0186	U	0.0186	U
Aroclor 1254	~	~	0.0182	U	0.0186	U	0.0175	U	0.0201	U	0.0180	U	0.0181	U	0.0169	U	0.0186	U	0.0186	U
Aroclor 1260	~	~	0.0182	U	0.0186	U	0.0175	U	0.0201	U	0.0180	U	0.0181	U	0.0169	U	0.0186	U	0.0186	U
Total PCBs	3.2	1	0.0182	U	0.0186	U	0.0175	U	0.0201	U	0.0180	U	0.0181	U	0.0169	U	0.0186	U	0.0186	U
PFAS, EPA 1633 Target List			mg/kg		mg/kg		mg/kg		mg/kg		ug/kg		ug/kg		ug/kg		mg/kg		mg/kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
11CL-PF3OUdS	~	~	0.00034	U	0.00035	U	0.00034	U	0.00034	U	0.338	U	0.347	U	0.322	U	0.00034	U	0.00034	U
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 F	~	~	0.00081	U	0.00085	U	0.00083	U	0.00083	U	0.820	U	0.843	U	0.781	U	0.00083	U	0.00083	U
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 F	~	~	0.00064	U	0.00067	U	0.00065	U	0.00066	U	0.646	U	0.665	U	0.616	U	0.00066	U	0.00065	U
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 F	~	~	0.00064	U	0.00067	U	0.00065	U	0.00066	U	0.646	U	0.665	U	0.616	U	0.00066	U	0.00065	U
3-Perfluoroheptyl propanoic acid (FHpPA)	~	~	0.00162	U	0.00168	U	0.00164	U	0.00166	U	1.630	U	1.680	U	1.550	U	0.00166	U	0.00165	U
3-Perfluoropentyl propanoic acid (FPePA)	~	~	0.00226	U	0.00235	U	0.00229	U	0.00232	U	2.280	U	2.340	U	2.170	U	0.00232	U	0.00231	U
3-Perfluoropropyl propanoic acid (FPrPA)	~	~	0.00068	U	0.00071	U	0.00069	U	0.00070	U	0.689	U	0.708	U	0.656	U	0.00070	U	0.00070	U
9CL-PF3ONS	~	~	0.00027	U	0.00028	U	0.00027	U	0.00027	U	0.267	U	0.275	U	0.254	U	0.00027	U	0.00027	U
ADONA	~	~	0.00019	U	0.00020	U	0.00019	U	0.00019	U	0.189	U	0.194	U	0.180	U	0.00019	U	0.00019	U
HFPO-DA (Gen-X)	~	~	0.00066	U	0.00068	U	0.00067	U	0.00067	U	0.660	U	0.679	U	0.629	U	0.00067	U	0.00067	U
N-EtFOSA	~	~	0.00021	U	0.00022	U	0.00022	U	0.00022	U	0.215	U	0.221	U	0.205	U	0.00022	U	0.00022	U
N-EtFOSAA	~	~	0.00021	U	0.00022	U	0.00021	U	0.00035		0.211	U	0.217	U	0.201	U	0.00021	U	0.00021	U
N-EtFOSE	~	~	0.00075	U	0.00078	U	0.00076	U	0.00077	U	0.757	U	0.779	U	0.721	U	0.00077	U	0.00077	U
N-MeFOSA	~	~	0.00019	U	0.00020	U	0.00020	U	0.00020	U	0.195	U	0.201	U	0.186	U	0.00020	U	0.00020	U
N-MeFOSAA	~	~	0.00016	U	0.00017	U	0.00016	U	0.00016	U	0.161	U	0.165	U	0.153	U	0.00016	U	0.00016	U
N-MeFOSE	~	~	0.00066	U	0.00069	U	0.00067	U	0.00067	U	0.664	U	0.682	U	0.632	U	0.00068	U	0.00067	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	~	~	0.00015	U	0.00016	U	0.00015	U	0.00015	U	0.151	U	0.155	U	0.144	U	0.00015	U	0.00015	U
Perfluoro-1-decanesulfonic acid (PFDS)	~	~	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.207	U	0.213	U	0.198	U	0.00021	U	0.00021	U
Perfluoro-1-heptanesulfonic acid (PFHpS)	~	~	0.00017	U	0.00017	U	0.00017	U	0.00017	U	0.168	U	0.173	U	0.160	U	0.00017	U	0.00017	U
Perfluoro-1-nonanesulfonic acid (PFNS)	~	~	0.00013	U	0.00014	U	0.00014	U	0.00014	U	0.135	U	0.139	U	0.128	U	0.00014	U	0.00014	U
Perfluoro-1-octanesulfonamide (FOSA)	~	~	0.00016	U	0.00016	U	0.00016	U	0.00016	U	0.159	U	0.163	U	0.151	U	0.00016	U	0.00016	U
Perfluoro-1-pentanesulfonate (PFPeS)	~	~	0.00017	U	0.00018	U	0.00017	U	0.00017	U	0.171	U	0.175	U	0.162	U	0.00017	U	0.00017	U
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	~	~	0.00021	U	0.00022	U	0.00021	U	0.00021	U	0.210	U	0.216	U	0.200	U	0.00021	U	0.00021	U
Perfluoro-4-oxapentanoic acid (PFMPA)	~	~	0.00007	U	0.00007	U	0.00007	U	0.00007	U	0.0673	U	0.0693	U	0.0641	U	0.00007	U	0.00007	U
Perfluoro-5-oxahexanoic acid (PFMBA)	~	~	0.00010	U	0.00011	U	0.00011	U	0.00011	U	0.104	U	0.107	U	0.0993	U	0.00011	U	0.00011	U
Perfluorobutanesulfonic acid (PFBS)	~	~	0.00012	U	0.00013	U	0.00012	U	0.00012	U	0.121	U	0.124	U	0.115	U	0.00012	U	0.00012	U
Perfluorodecanoic acid (PFDA)	~	~	0.00021	U	0.00021	U	0.00021	U	0.00021	U	0.207	U	0.213	U	0.198	U	0.00021	U	0.00021	U
Perfluorododecanesulfonic acid (PFDoS)	~	~	0.00018	U	0.00019	U	0.00019	U	0.00019	U	0.184	U	0.189	U	0.175	U	0.00019	U	0.00019	U
Perfluorododecanoic acid (PFDoA)	~	~	0.00018	U	0.00018	U	0.00018	U	0.00024		0.177	U	0.182	U	0.169	U	0.00018	U	0.00018	U
Perfluoroheptanoic acid (PFHpA)	~	~	0.00011	U	0.00012	U	0.00012	U	0.00015	J	0.114	U	0.117	U	0.109	U	0.00012	U	0.00012	U
Perfluorohexanesulfonic acid (PFHxS)	~	~	0.00019	U	0.00020	U	0.00020	U	0.00021		0.194	U	0.200	U	0.185	U	0.00020	U	0.00020	U
Perfluorohexanoic acid (PFHxA)	~	~	0.00006	U	0.00006	U	0.00006	U	0.00006	U	0.0576	U	0.0592	U	0.0548	U	0.00006	U	0.00006	U
Perfluoro-n-butanoic acid (PFBA)	~	~	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.118	U	0.122	U	0.113	U	0.00012	U	0.00012	U
Perfluorononanoic acid (PFNA)	~	~	0.00020	U	0.00021	U	0.00021	U	0.00021	U	0.205	U	0.211	U	0.196	U	0.00021	U	0.00021	U
Perfluorooctanesulfonic acid (PFOS)	3.700	44	0.00018	U	0.00019	U	0.00018	U	0.00018	U	0.281		0.187	U	0.173	U	0.00018	U	0.00018	U
Perfluorooctanoic acid (PFOA)	1.100	33	0.00019	U	0.00019	U	0.00019	U	0.00025		0.187	U	0.192	U	0.178	U	0.00019	U	0.00019	U
Perfluoropentanoic acid (PFPeA)	~	~	0.00012	U	0.00012	U	0.00012	U	0.00012	U	0.118	U	0.122	U	0.113	U	0.00012	U	0.00012	U
Perfluorotetradecanoic acid (PFTA)	~	~	0.00011	U	0.00012	U	0.00011	U	0.00083		0.112	U	0.115	U	0.107	U	0.00011	U	0.00011	U
Perfluorotridecanoic acid (PFTrDA)	~	~	0.00014	U	0.00014	U	0.00014	U	0.00063		0.136	U	0.140	U	0.129	U	0.00014	U	0.00014	U
Perfluoroundecanoic acid (PFUnA)	~	~	0.00021	U	0.00022	U	0.00022	U	0.00022	U	0.215	U	0.221	U	0.205	U	0.00022	U	0.00022	U

NOTES:
Any Regulatory Exceedences are color coded by Regulation
Gray Highlighted cells are MDL is above the applicable standard
Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) -
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
P=this flag is used for pesticide and PCB (Aroclor) target compounds when there is a % difference for
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte
Exceeds NYSDEC Part 375 Protection of Groundwater SCOs
Exceeds NYSDEC Part 375 Restricted Residential SCOs

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-28** **24D0112-04** **4/1/2024 12:30:00 PM** **Soil**		**EP-29** **24E0990-02** **5/14/2024 10:30:00 AM** **Soil**		**EP-30** **24F0122-01** **6/3/2024 10:00:00 AM** **Soil**		**EP-31** **24F1760-03** **6/26/2024 10:20:00 AM** **Soil**		**EP-32** **24G1472-01** **7/22/2024 11:15:00 AM** **Soil**		**EP-33** **24G1472-02** **7/22/2024 11:30:00 AM** **Soil**		**DUP-01** **24B0971-11** **2/16/2024 2:30:00 PM** **Soil**		**DUP 20240401** **24D0097-05** **4/1/2024 3:00:00 PM** **Soil**		**DUP-071624** **24G0991-05** **7/16/2024 10:00:00 AM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
VOA, 8260 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		100		1		1	
1,1,1,2-Tetrachloroethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,1,1-Trichloroethane	0.68	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,1,2,2-Tetrachloroethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,1,2-Trichloroethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,1-Dichloroethane	0.27	26	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,1-Dichloroethylene	0.33	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,1-Dichloropropylene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,2,3-Trichlorobenzene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,2,3-Trichloropropane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,2,4-Trichlorobenzene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,2,4-Trimethylbenzene	3.6	52	0.00470		0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	**11**	D	0.00130	U	0.00630	
1,2-Dibromo-3-chloropropane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,2-Dibromoethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,2-Dichlorobenzene	1.1	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,2-Dichloroethane	0.02	3.1	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,2-Dichloropropane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,3,5-Trimethylbenzene	8.4	52	0.00190	J	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	3.300	D	0.00180	J	0.00200	U
1,3-Dichlorobenzene	2.4	49	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,3-Dichloropropane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,4-Dichlorobenzene	1.8	13	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
1,4-Dioxane	0.1	13	0.0270	U			0.0260	U	0.0390	U	0.0350	U	0.0330	U	2.100	U	0.0260	U	0.0390	U
2,2-Dichloropropane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
2-Butanone	0.12	100	0.00140	J	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
2-Chlorotoluene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
2-Hexanone	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
4-Chlorotoluene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
4-Methyl-2-pentanone	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Acetone	0.05	100	0.0150		0.00610	J	0.00260	U	0.00390	U	**0.390**	E	0.00330	U	0.210	U	0.0150		0.00390	U
Acrolein	~	~	0.00270	U	0.00460	U	0.00260	U	0.00390	U	0.00350	U	0.00330	U	0.210	U	0.00260	U	0.00390	U
Acrylonitrile	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Benzene	0.06	4.8	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Bromobenzene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Bromochloromethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Bromodichloromethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Bromoform	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Bromomethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Carbon disulfide	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Carbon tetrachloride	0.76	2.4	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Chlorobenzene	1.1	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Chloroethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Chloroform	0.37	49	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Chloromethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
cis-1,2-Dichloroethylene	0.25	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
cis-1,3-Dichloropropylene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Cyclohexane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00180	J	0.00200	U
Dibromochloromethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Dibromomethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Dichlorodifluoromethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Ethyl Benzene	1	41	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	**2.500**	D	0.00130	U	0.00200	U
Hexachlorobutadiene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Isopropylbenzene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.470	D	0.00130	U	0.00200	U
Methyl acetate	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.0340		0.00170	U	0.100	U	0.00130	U	0.00200	U
Methyl tert-butyl ether (MTBE)	0.93	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Methylcyclohexane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	1.400	D	0.00130	U	0.00200	U
Methylene chloride	0.05	100	0.00270	U	0.00510	J	0.00260	U	0.00390	U	0.00350	U	0.00330	U	**1.300**	D	0.00260	U	0.00390	U
n-Butylbenzene	12	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.380	D	0.00130	U	0.00200	U
n-Propylbenzene	3.9	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	1.500	D	0.00130	U	0.00200	U
o-Xylene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	3.700	D	0.00130	U	0.00200	U
p- & m- Xylenes	~	~	0.00270	U	0.00460	U	0.00260	U	0.00390	U	0.00350	U	0.00330	U	11	D	0.00260	U	0.00390	U
p-Isopropyltoluene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.120	JD	0.00130	U	0.00200	U
sec-Butylbenzene	11	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Styrene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
tert-Butyl alcohol (TBA)	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.0320		0.00170	U	0.100	U	0.00130	U	0.00200	U
tert-Butylbenzene	5.9	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Tetrachloroethylene	1.3	19	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Toluene	0.7	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	**1.800**	D	0.00130	U	0.00200	U
trans-1,2-Dichloroethylene	0.19	100	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
trans-1,3-Dichloropropylene	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Trichloroethylene	0.47	21	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Trichlorofluoromethane	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Vinyl acetate	~	~	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Vinyl Chloride	0.02	0.9	0.00140	U	0.00230	U	0.00130	U	0.00190	U	0.00180	U	0.00170	U	0.100	U	0.00130	U	0.00200	U
Xylenes, Total	1.6	100	0.00410	U	0.00690	U	0.00390	U	0.00580	U	0.00530	U	0.00500	U	**14**	D	0.00390	U	0.00590	U

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-28** **24D0112-04** **4/1/2024 12:30:00 PM** **Soil**		**EP-29** **24E0990-02** **5/14/2024 10:30:00 AM** **Soil**		**EP-30** **24F0122-01** **6/3/2024 10:00:00 AM** **Soil**		**EP-31** **24F1760-03** **6/26/2024 10:20:00 AM** **Soil**		**EP-32** **24G1472-01** **7/22/2024 11:15:00 AM** **Soil**		**EP-33** **24G1472-02** **7/22/2024 11:30:00 AM** **Soil**		**DUP-01** **24B0971-11** **2/16/2024 2:30:00 PM** **Soil**		**DUP 20240401** **24D0097-05** **4/1/2024 3:00:00 PM** **Soil**		**DUP-071624** **24G0991-05** **7/16/2024 10:00:00 AM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Semi-Volatiles, 1,4-Dioxane 8270 SIM-Soil	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
1,4-Dioxane	13	13	0.0194		0.0460	U	0.0260	U	0.0192	U	0.0194	U	0.0198	U	0.0198	U	0.0194	U	0.0189	U
SVOA, 8270 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			2		2		2		2		2		2		2		2		2	
1,1-Biphenyl	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
1,2,4,5-Tetrachlorobenzene	~	~	0.0923		0.0925	U	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
1,2,4-Trichlorobenzene	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
1,2-Dichlorobenzene	1.1	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
1,2-Diphenylhydrazine (as Azobenzene)	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
1,3-Dichlorobenzene	2.4	49	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
1,4-Dichlorobenzene	1.8	13	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2,3,4,6-Tetrachlorophenol	~	~	0.0923		0.101	JD	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
2,4,5-Trichlorophenol	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2,4,6-Trichlorophenol	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2,4-Dichlorophenol	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2,4-Dimethylphenol	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2,4-Dinitrophenol	~	~	0.0923		0.0925	U	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
2,4-Dinitrotoluene	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2,6-Dinitrotoluene	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2-Chloronaphthalene	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2-Chlorophenol	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2-Methylnaphthalene	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2-Methylphenol	0.33	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
2-Nitroaniline	~	~	0.0923		0.0925	U	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
2-Nitrophenol	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
3- & 4-Methylphenols	0.33	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
3,3-Dichlorobenzidine	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
3-Nitroaniline	~	~	0.0923		0.0925	U	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
4,6-Dinitro-2-methylphenol	~	~	0.0923		0.0925	U	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
4-Bromophenyl phenyl ether	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
4-Chloro-3-methylphenol	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
4-Chloroaniline	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
4-Chlorophenyl phenyl ether	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
4-Nitroaniline	~	~	0.0923		0.0925	U	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
4-Nitrophenol	~	~	0.0923		0.0925	U	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
Acenaphthene	98	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Acenaphthylene	107	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Acetophenone	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Aniline	~	~	0.185		0.185	U	0.196	U	0.197	U	0.184	U	0.181	U	0.180	U	0.186	U	0.184	U
Anthracene	1000	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Atrazine	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzaldehyde	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzidine	~	~	0.185		0.185	U	0.196	U	0.197	U	0.184	U	0.181	U	0.180	U	0.186	U	0.184	U
Benzo(a)anthracene	1	1	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzo(a)pyrene	22	1	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzo(b)fluoranthene	1.7	1	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzo(g,h,i)perylene	1000	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzo(k)fluoranthene	1.7	3.9	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzoic acid	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzyl alcohol	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Benzyl butyl phthalate	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Bis(2-chloroethoxy)methane	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Bis(2-chloroethyl)ether	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Bis(2-chloroisopropyl)ether	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Bis(2-ethylhexyl)phthalate	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Caprolactam	~	~	0.0923		0.0925	U	0.0978	U	0.0982	U	0.0919	U	0.0902	U	0.0901	U	0.0931	U	0.0919	U
Carbazole	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Chrysene	1	3.9	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Dibenzo(a,h)anthracene	1000	0.33	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Dibenzofuran	210	59	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Diethyl phthalate	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Dimethyl phthalate	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Di-n-butyl phthalate	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.185	D	0.0461	U
Di-n-octyl phthalate	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Fluoranthene	1000	100	0.0678		0.0525	JD	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Fluorene	386	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Hexachlorobenzene	3.2	1.2	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Hexachlorobutadiene	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Hexachlorocyclopentadiene	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Hexachloroethane	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Indeno(1,2,3-cd)pyrene	8.2	0.5	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Isophorone	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Naphthalene	12	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Nitrobenzene	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
N-Nitrosodimethylamine	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
N-nitroso-di-n-propylamine	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
N-Nitrosodiphenylamine	~	~	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Pentachlorophenol	0.8	6.7	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Phenanthrene	1000	100	0.0479		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Phenol	0.33	100	0.0462		0.0463	U	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Pyrene	1000	100	0.0634		0.0532	JD	0.0490	U	0.0492	U	0.0460	U	0.0452	U	0.0452	U	0.0467	U	0.0461	U
Pyridine	~	~	0.185		0.185	U	0.196	U	0.197	U	0.184	U	0.181	U	0.180	U	0.186	U	0.184	U

Table 3. Endpont Sample Results
Enclave on 241st Development

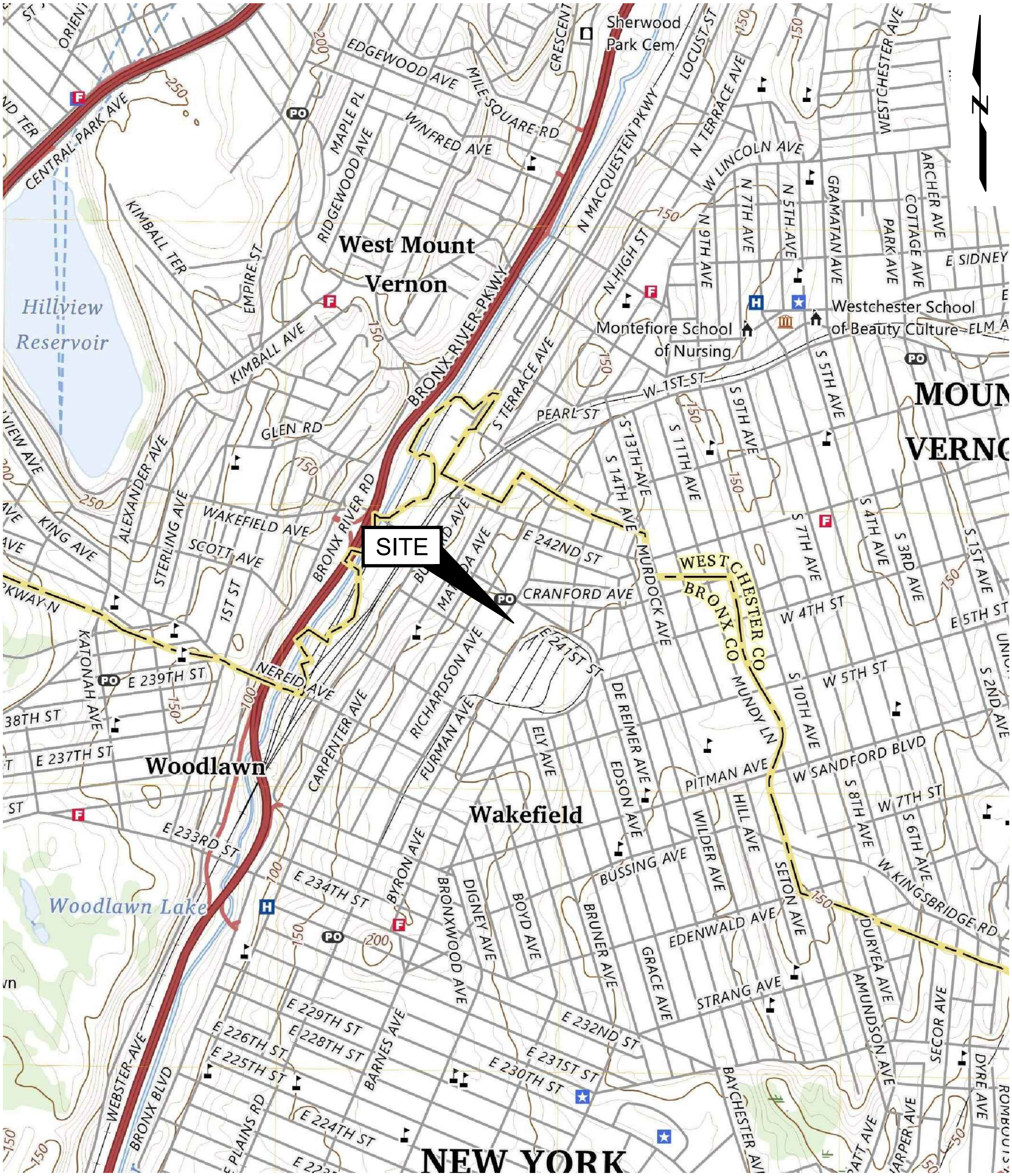
Sample ID **York ID** **Sampling Date** **Client Matrix**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives- Protection of GW**	**NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential**	**EP-28** **24D0112-04** **4/1/2024 12:30:00 PM** **Soil**		**EP-29** **24E0990-02** **5/14/2024 10:30:00 AM** **Soil**		**EP-30** **24F0122-01** **6/3/2024 10:00:00 AM** **Soil**		**EP-31** **24F1760-03** **6/26/2024 10:20:00 AM** **Soil**		**EP-32** **24G1472-01** **7/22/2024 11:15:00 AM** **Soil**		**EP-33** **24G1472-02** **7/22/2024 11:30:00 AM** **Soil**		**DUP-01** **24B0971-11** **2/16/2024 2:30:00 PM** **Soil**		**DUP 20240401** **24D0097-05** **4/1/2024 3:00:00 PM** **Soil**		**DUP-071624** **24G0991-05** **7/16/2024 10:00:00 AM** **Soil**	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PEST, 8081 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			5		5		5		5		5		5		5		5		5	
4,4'-DDD	14	13	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
4,4'-DDE	17	8.9	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
4,4'-DDT	136	7.9	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Aldrin	0.19	0.097	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
alpha-BHC	0.02	0.48	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
alpha-Chlordane	2.9	4.2	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00189	D	0.00178	U
beta-BHC	0.09	0.36	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Chlordane, total	~	~	0.0367		0.0366	U	0.0377	U	0.0395	U	0.0359	U	0.0361	U	0.0357	U	0.0366	U	0.0357	U
delta-BHC	0.25	100	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Dieldrin	0.1	0.2	0.00184		0.00183	U	0.00188	U	0.00550	D	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Endosulfan I	102	24	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Endosulfan II	102	24	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Endosulfan sulfate	1000	24	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Endrin	0.06	11	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Endrin aldehyde	~	~	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Endrin ketone	~	~	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
gamma-BHC (Lindane)	0.1	1.3	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
gamma-Chlordane	~	~	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00187	D	0.00178	U
Heptachlor	0.38	2.1	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Heptachlor epoxide	~	~	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Methoxychlor	~	~	0.00184		0.00183	U	0.00188	U	0.00197	U	0.00179	U	0.00181	U	0.00178	U	0.00183	U	0.00178	U
Toxaphene	~	~	0.184		0.183	U	0.188	U	0.197	U	0.179	U	0.181	U	0.178	U	0.183	U	0.178	U
Metals, Target Analyte	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Aluminum	~	~	10,100		7,830		16,000		10,400		11,700		9,000		8,130		11,500		10,600	
Antimony	~	~	2.330		2.340	U	2.450	U	2.520	U	2.300	U	2.290	U	2.260	U	2.360	U	2.310	U
Arsenic	16	16	3.200		3.220		5.170		3.180		2.590		2.430		3.500		4.130		2.650	
Barium	820	400	64.500		53.200		85.400		69.500		73.600		61.200		50.300		67.700		69.200	
Beryllium	47	72	0.0470		0.0470	U	0.0490	U	0.282		0.599	B	0.669	B	0.0460	U	0.0480	U	0.296	
Cadmium	7.5	4.3	0.279		0.281	U	0.294	U	0.302	U	0.276	U	0.275	U	0.271	U	0.283	U	0.277	U
Calcium	~	~	10,200		8,410		2,230		2,980		3,680		3,760		17,800		6,660		3,910	
Chromium	~	~	19		16.400		26		27.600		43.300		21		28.500		24		22.200	
Cobalt	~	~	7.130		6.290		10.400		8.020		12.100		7.730		8.350		8.140		7.740	
Copper	1720	270	20.200		18.500		20		23.300		42.100		17.300		19.100		23		22.200	
Iron	~	~	15,200		13,400		19,500		17,700		22,500		15,000		15,200		17,700		16,700	
Lead	450	400	16.400		16.400		13.800		5.800		7.620		13.500		8.220		15.700		16.900	
Magnesium	~	~	4,870		5,100		4,440		4,820		6,540		4,040		8,310		4,940		4,370	
Manganese	2000	2000	388		329		265		258		514		332		380		360		320	
Nickel	130	310	16.300		15.200		17		17.200		23.100		16.200		23.100		21.100		17.500	
Potassium	~	~	2,380		1,750		1,440		2,080	B	1,610	B	1,640	B	1,710		2,560		1,770	
Selenium	4	180	2.330		2.340	U	2.450	U	2.520	U	2.300	U	2.290	U	2.260	U	2.360	U	2.310	U
Silver	8.3	180	0.469		0.472	U	0.494	U	0.507	U	0.464	U	0.462	U	0.455	U	0.475	U	0.466	U
Sodium	~	~	194		229		93.400		166		142		148		163		208		127	
Thallium	~	~	2.330		2.340	U	2.450	U	2.520	U	2.300	U	2.290	U	2.260	U	2.360	U	2.310	U
Vanadium	~	~	23.300		20.100		33.800		30.600		37.900		24.500		24.100		25.300		26.700	
Zinc	2480	10000	40.300		35		41.100		44.300		45		37.500		35.200		46.200		43.200	
Mercury by 7473	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Mercury	0.730	0.81	0.0369		0.0337	U	0.0454		0.0362	U	0.0331	U	0.0330	U	0.0325	U	0.0373	U	0.0333	U
Chromium, Hexavalent	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Chromium, Hexavalent	19	110	0.760		0.562	U	0.588	U	0.604	U	0.552	U	0.550	U	0.542	U	1.490		0.555	U
Chromium, Trivalent	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg			
Dilution Factor			1		1				1		1		1		1		1			
Chromium, Trivalent	~	180	18.240		16.400		26		27.600		42.748		20.450		27.958		22.510		21.645	
Cyanide, Total	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Cyanide, total	40	27	0.559	U	0.562	U	0.588	U	0.604	U	0.552	U	0.550	U	0.542	U	0.566	U	0.555	U
Total Solids			%		%		%		%		%		%		%		%		%	
Dilution Factor			1		1		1		1		1		1		1		1		1	
% Solids	~	~	89.500		89		85		82.800		90.500		91		92.200		88.400		90.200	

Table 3. Endpont Sample Results
Enclave on 241st Development

Sample ID York ID Sampling Date Client Matrix	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives - Restricted Residential	EP-28 24D0112-04 4/1/2024 12:30:00 PM Soil		EP-29 24E0990-02 5/14/2024 10:30:00 AM Soil		EP-30 24F0122-01 6/3/2024 10:00:00 AM Soil		EP-31 24F1760-03 6/26/2024 10:20:00 AM Soil		EP-32 24G1472-01 7/22/2024 11:15:00 AM Soil		EP-33 24G1472-02 7/22/2024 11:30:00 AM Soil		DUP-01 24B0971-11 2/16/2024 2:30:00 PM Soil		DUP 20240401 24D0097-05 4/1/2024 3:00:00 PM Soil		DUP-071624 24G0991-05 7/16/2024 10:00:00 AM Soil	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
PCB, 8082 MASTER	mg/Kg	mg/Kg	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
Aroclor 1016	~	~	0.0186	U	0.0185	U	0.0190	U	0.0199	U	0.0181	U	0.0182	U	0.0180	U	0.0185	U	0.0180	U
Aroclor 1221	~	~	0.0186	U	0.0185	U	0.0190	U	0.0199	U	0.0181	U	0.0182	U	0.0180	U	0.0185	U	0.0180	U
Aroclor 1232	~	~	0.0186	U	0.0185	U	0.0190	U	0.0199	U	0.0181	U	0.0182	U	0.0180	U	0.0185	U	0.0180	U
Aroclor 1242	~	~	0.0186	U	0.0185	U	0.0190	U	0.0199	U	0.0181	U	0.0182	U	0.0180	U	0.0185	U	0.0180	U
Aroclor 1248	~	~	0.0186	U	0.0185	U	0.0190	U	0.0199	U	0.0181	U	0.0182	U	0.0180	U	0.0185	U	0.0180	U
Aroclor 1254	~	~	0.0186	U	0.0185	U	0.0190	U	0.0199	U	0.0181	U	0.0182	U	0.0180	U	0.0185	U	0.0180	U
Aroclor 1260	~	~	0.0186	U	0.0185	U	0.0190	U	0.0199	U	0.0181	U	0.0182	U	0.0180	U	0.0185	U	0.0180	U
Total PCBs	3.2	1	0.0186	U	0.0185	U	0.0190	U	0.0199	U	0.0181	U	0.0182	U	0.0180	U	0.0185	U	0.0180	U
PFAS, EPA 1633 Target List			mg/kg		ug/kg		ug/kg		ug/kg		ug/kg		ug/kg		mg/kg		mg/kg		mg/kg	
Dilution Factor			1		1		1		1		1		1		1		1		1	
11CL-PF3OUdS	~	~	0.00035	U	0.344	U	0.365	U	0.376	U	0.341	U	0.339	U	0.00033	U	0.00035	U	0.00034	U
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 F	~	~	0.00084	U	0.835	U	0.887	U	0.912	U	0.828	U	0.822	U	0.00080	U	0.00084	U	0.00083	U
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 F	~	~	0.00066	U	0.658	U	0.699	U	0.719	U	0.653	U	0.648	U	0.00063	U	0.00066	U	0.00066	U
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 F	~	~	0.00066	U	0.658	U	0.699	U	0.719	U	0.653	U	0.648	U	0.00063	U	0.00066	U	0.00066	U
3-Perfluoroheptyl propanoic acid (FHpPA)	~	~	0.00167	U	1.660	U	1.760	U	1.810	U	1.650	U	1.630	U	0.00160	U	0.00166	U	0.00166	U
3-Perfluoropentyl propanoic acid (FPePA)	~	~	0.00234	U	2.320	U	2.460	U	2.530	U	2.300	U	2.280	U	0.00223	U	0.00233	U	0.00232	U
3-Perfluoropropyl propanoic acid (FPrPA)	~	~	0.00071	U	0.701	U	0.745	U	0.766	U	0.695	U	0.690	U	0.00068	U	0.00070	U	0.00070	U
9CL-PF3ONS	~	~	0.00027	U	0.272	U	0.289	U	0.297	U	0.270	U	0.268	U	0.00026	U	0.00027	U	0.00027	U
ADONA	~	~	0.00019	U	0.192	U	0.204	U	0.210	U	0.191	U	0.189	U	0.00019	U	0.00019	U	0.00019	U
HFPO-DA (Gen-X)	~	~	0.00068	U	0.672	U	0.714	U	0.735	U	0.667	U	0.662	U	0.00065	U	0.00067	U	0.00067	U
N-EtFOSA	~	~	0.00022	U	0.219	U	0.233	U	0.239	U	0.217	U	0.216	U	0.00021	U	0.00022	U	0.00022	U
N-EtFOSAA	~	~	0.00022	U	0.214	U	0.228	U	0.234	U	0.213	U	0.211	U	0.00021	U	0.00022	U	0.00021	U
N-EtFOSE	~	~	0.00078	U	0.771	U	0.819	U	0.842	U	0.764	U	0.759	U	0.00074	U	0.00077	U	0.00077	U
N-MeFOSA	~	~	0.00020	U	0.199	U	0.211	U	0.217	U	0.197	U	0.196	U	0.00019	U	0.00020	U	0.00020	U
N-MeFOSAA	~	~	0.00017	U	0.164	U	0.174	U	0.179	U	0.162	U	0.161	U	0.00016	U	0.00016	U	0.00016	U
N-MeFOSE	~	~	0.00068	U	0.676	U	0.718	U	0.738	U	0.670	U	0.665	U	0.00065	U	0.00068	U	0.00067	U
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	~	~	0.00016	U	0.154	U	0.163	U	0.168	U	0.152	U	0.151	U	0.00015	U	0.00015	U	0.00015	U
Perfluoro-1-decanesulfonic acid (PFDS)	~	~	0.00021	U	0.211	U	0.224	U	0.231	U	0.209	U	0.208	U	0.00020	U	0.00021	U	0.00021	U
Perfluoro-1-heptanesulfonic acid (PFHpS)	~	~	0.00017	U	0.171	U	0.182	U	0.187	U	0.170	U	0.169	U	0.00017	U	0.00017	U	0.00017	U
Perfluoro-1-nonanesulfonic acid (PFNS)	~	~	0.00014	U	0.137	U	0.146	U	0.150	U	0.136	U	0.135	U	0.00013	U	0.00014	U	0.00014	U
Perfluoro-1-octanesulfonamide (FOSA)	~	~	0.00016	U	0.161	U	0.171	U	0.176	U	0.160	U	0.159	U	0.00016	U	0.00016	U	0.00016	U
Perfluoro-1-pentanesulfonate (PFPeS)	~	~	0.00018	U	0.174	U	0.184	U	0.190	U	0.172	U	0.171	U	0.00017	U	0.00017	U	0.00017	U
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	~	~	0.00022	U	0.213	U	0.227	U	0.233	U	0.212	U	0.210	U	0.00021	U	0.00021	U	0.00021	U
Perfluoro-4-oxapentanoic acid (PFMPA)	~	~	0.00007	U	0.0685	U	0.0728	U	0.0749	U	0.0680	U	0.0675	U	0.00007	U	0.00007	U	0.00007	U
Perfluoro-5-oxahexanoic acid (PFMBA)	~	~	0.00011	U	0.106	U	0.113	U	0.116	U	0.105	U	0.104	U	0.00010	U	0.00011	U	0.00011	U
Perfluorobutanesulfonic acid (PFBS)	~	~	0.00012	U	0.123	U	0.130	U	0.134	U	0.122	U	0.121	U	0.00012	U	0.00012	U	0.00012	U
Perfluorodecanoic acid (PFDA)	~	~	0.00021	U	0.211	U	0.224	U	0.231	U	0.209	U	0.208	U	0.00020	U	0.00021	U	0.00021	U
Perfluorododecanesulfonic acid (PFDoS)	~	~	0.00019	U	0.187	U	0.198	U	0.204	U	0.185	U	0.184	U	0.00018	U	0.00019	U	0.00019	U
Perfluorododecanoic acid (PFDoA)	~	~	0.00018	U	0.180	U	0.191	U	0.197	U	0.179	U	0.177	U	0.00017	U	0.00018	U	0.00018	U
Perfluoroheptanoic acid (PFHpA)	~	~	0.00012	U	0.116	U	0.123	U	0.127	U	0.115	U	0.114	U	0.00011	U	0.00012	U	0.00012	U
Perfluorohexanesulfonic acid (PFHxS)	~	~	0.00020	U	0.198	U	0.210	U	0.216	U	0.196	U	0.195	U	0.00019	U	0.00020	U	0.00020	U
Perfluorohexanoic acid (PFHxA)	~	~	0.00006	U	0.0586	U	0.0622	U	0.0640	U	0.0666	J	0.0577	U	0.00006	U	0.00006	U	0.00006	U
Perfluoro-n-butanoic acid (PFBA)	~	~	0.00012	U	0.121	U	0.128	U	0.132	U	0.120	U	0.119	U	0.00012	U	0.00012	U	0.00012	U
Perfluorononanoic acid (PFNA)	~	~	0.00021	U	0.209	U	0.222	U	0.228	U	0.207	U	0.206	U	0.00020	U	0.00021	U	0.00021	U
Perfluorooctanesulfonic acid (PFOS)	3.700	44	0.00019	U	0.185	U	0.196	U	0.202	U	0.183	U	0.182	U	0.00018	U	0.00026		0.00018	U
Perfluorooctanoic acid (PFOA)	1.100	33	0.00019	U	0.190	U	0.202	U	0.208	U	0.189	U	0.187	U	0.00018	U	0.00019	U	0.00019	U
Perfluoropentanoic acid (PFPeA)	~	~	0.00012	U	0.121	U	0.147	J	0.132	U	0.120	U	0.119	U	0.00012	U	0.00012	U	0.00012	U
Perfluorotetradecanoic acid (PFTA)	~	~	0.00012	U	0.114	U	0.121	U	0.124	U	0.113	U	0.112	U	0.00011	U	0.00011	U	0.00011	U
Perfluorotridecanoic acid (PFTrDA)	~	~	0.00014	U	0.138	U	0.147	U	0.151	U	0.137	U	0.136	U	0.00013	U	0.00014	U	0.00014	U
Perfluoroundecanoic acid (PFUnA)	~	~	0.00022	U	0.219	U	0.233	U	0.239	U	0.217	U	0.216	U	0.00021	U	0.00022	U	0.00022	U

NOTES:
Any Regulatory Exceedences are color coded by Regulation
Gray Highlighted cells are MDL is above the applicable standard
Q is the Qualifier Column with definitions as follows:
D=result is from an analysis that required a dilution
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit)
U=analyte not detected at or above the level indicated
B=analyte found in the analysis batch blank
E=result is estimated and cannot be accurately reported due to levels encountered or interferences
P=this flag is used for pesticide and PCB (Aroclor) target compounds when there is a % difference for
NT=this indicates the analyte was not a target for this sample
~=this indicates that no regulatory limit has been established for this analyte
🟩 Exceeds NYSDEC Part 375 Protection of Groundwater SCOs
🟦 Exceeds NYSDEC Part 375 Restricted Residential SCOs

FIGURES



SOURCE:
MAP CREATED WITH THE FOLLOWING 7.5-MINUTE SERIES USGS
TOPOGRAPHIC MAPS: MOUNT VERNON, NY QUADRANGLE (2023)

0 2000 4000

SCALE: 1" = 2000'

700-714 EAST 241ST STREET
BRONX, NEW YORK

RADSON DEVELOPMENTAL BUILDERS, INC
GREAT NECK, NEW YORK

GEI Consultants

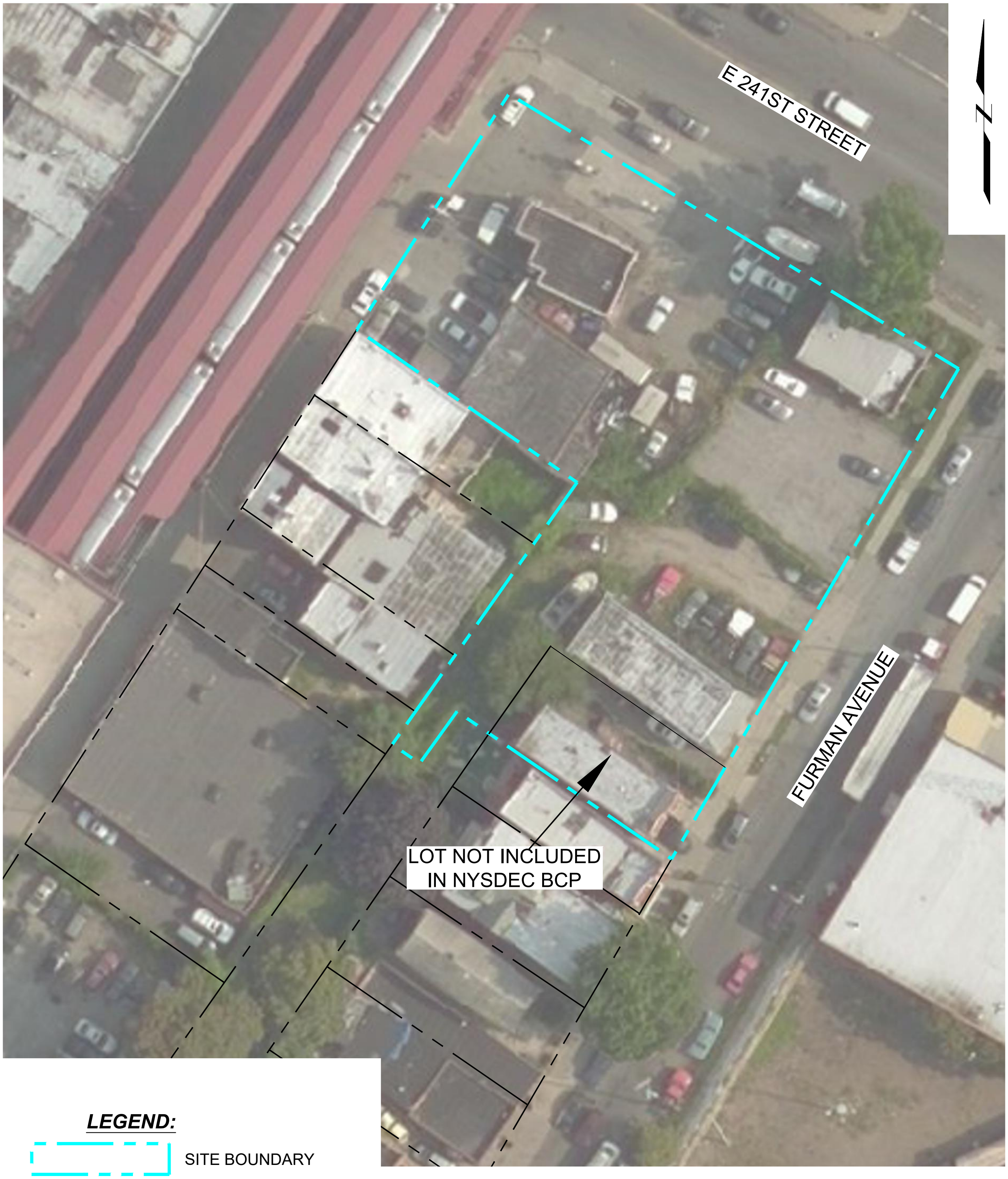
Project 2303902

SITE LOCATION MAP

July 2024

Fig. 1

ROBERTSON, LEIF B:\Working\RADSON DEVELOPMENTREAL BUILDERS, INC\2303902 Enclave on 241st Development
NYSDEC\00_CAD\Figures\SMP\2303902_Figure_1.dwg - 7/19/2024



LEGEND:

- SITE BOUNDARY
- PARCEL BOUNDARY

700-714 EAST 241ST STREET
BRONX, NEW YORK

RADSON DEVELOPMENTAL BUILDERS, INC
GREAT NECK, NEW YORK

GEI Consultants

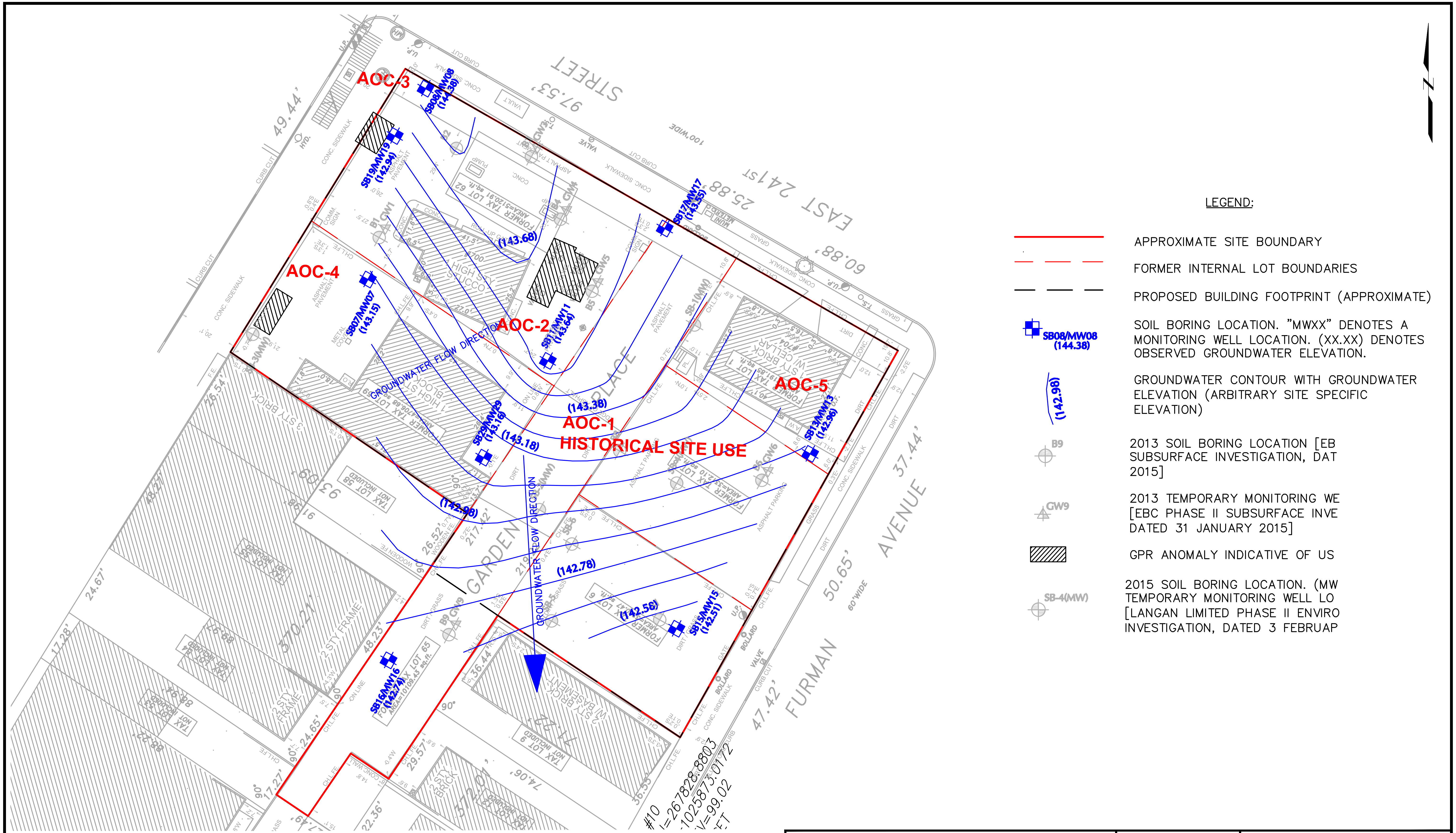
SITE PLAN

Project 2303902

July 2024

Fig. 2

ROBERTSON, LEIF B:\Working\RADSON DEVELOPMENTREAL BUILDERS, INC\2303902 Enclave on 241st Development NYSDEC\00_CAD\Figures\SMP\2303902_Figure_2.dwg - 7/17/2024



0 30 60

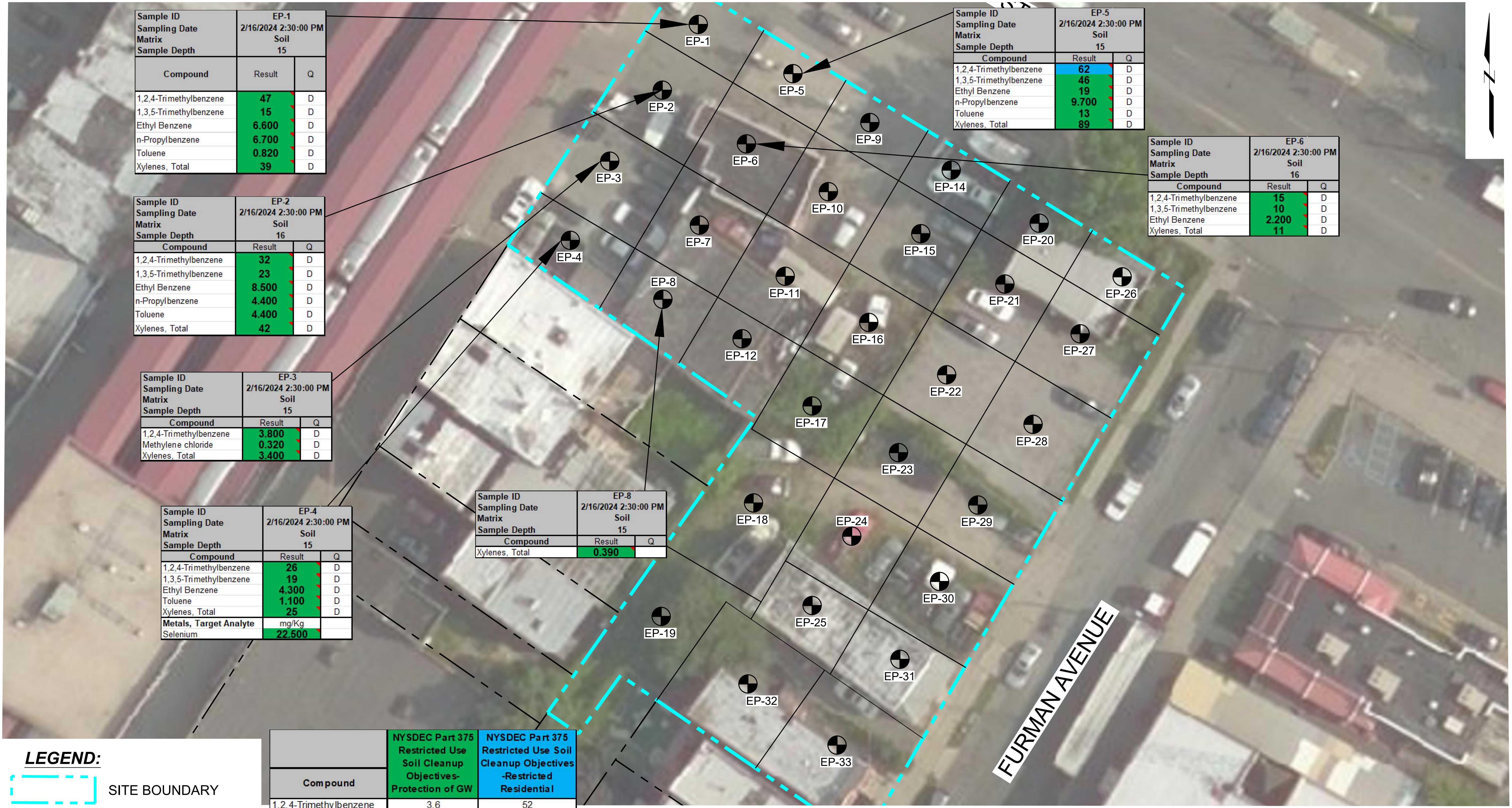
SCALE, FEET

SOURCE:

1. MAP FROM LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING AND LANDSCAPE ARCHITECTURE, D.P.C. REMEDIAL INVESTIGATION REPORT PREPARED IN APRIL 2016.

700-714 EAST 241ST STREET BRONX, NEW YORK	GEI Consultants	GROUNDWATER CONTOUR MAP
RADSON DEVELOPMENTAL BUILDERS, INC GREAT NECK, NEW YORK	Project 2303902	July 2024 Fig. 3

ROBERTSON, LEIF B:\Working\RADSON DEVELOPMENTREAL BUILDERS, INC\2303902 Enclave on 241st Development NYSDEC\00_CAD\Figures\SMP\2303902_Figure_3.dwg - 7/19/2024



Sample ID Sampling Date Matrix Sample Depth	EP-1 2/16/2024 2:30:00 PM Soil 15	
Compound	Result	Q
1,2,4-Trimethylbenzene	47	D
1,3,5-Trimethylbenzene	15	D
Ethyl Benzene	6.600	D
n-Propylbenzene	6.700	D
Toluene	0.820	D
Xylenes, Total	39	D

Sample ID Sampling Date Matrix Sample Depth	EP-2 2/16/2024 2:30:00 PM Soil 16	
Compound	Result	Q
1,2,4-Trimethylbenzene	32	D
1,3,5-Trimethylbenzene	23	D
Ethyl Benzene	8.500	D
n-Propylbenzene	4.400	D
Toluene	4.400	D
Xylenes, Total	42	D

Sample ID Sampling Date Matrix Sample Depth	EP-3 2/16/2024 2:30:00 PM Soil 15	
Compound	Result	Q
1,2,4-Trimethylbenzene	3.800	D
Methylene chloride	0.320	D
Xylenes, Total	3.400	D

Sample ID Sampling Date Matrix Sample Depth	EP-4 2/16/2024 2:30:00 PM Soil 15	
Compound	Result	Q
1,2,4-Trimethylbenzene	26	D
1,3,5-Trimethylbenzene	19	D
Ethyl Benzene	4.300	D
Toluene	1.100	D
Xylenes, Total	25	D
Metals, Target Analyte	mg/Kg	
Selenium	22.500	

Sample ID Sampling Date Matrix Sample Depth	EP-5 2/16/2024 2:30:00 PM Soil 15	
Compound	Result	Q
1,2,4-Trimethylbenzene	62	D
1,3,5-Trimethylbenzene	46	D
Ethyl Benzene	19	D
n-Propylbenzene	9.700	D
Toluene	13	D
Xylenes, Total	89	D

Sample ID Sampling Date Matrix Sample Depth	EP-6 2/16/2024 2:30:00 PM Soil 16	
Compound	Result	Q
1,2,4-Trimethylbenzene	15	D
1,3,5-Trimethylbenzene	10	D
Ethyl Benzene	2.200	D
Xylenes, Total	11	D

Sample ID Sampling Date Matrix Sample Depth	EP-8 2/16/2024 2:30:00 PM Soil 15	
Compound	Result	Q
Xylenes, Total	0.390	

LEGEND:

▭	SITE BOUNDARY
▭	PARCEL BOUNDARY
⊕ EP-01	ENDPOINT SAMPLE

NOTES:
1. GREEN HIGHLIGHT EXCEEDS PART 375 PROTECTION OF GROUNDWATER USE SCOs
2. BLUE HIGHLIGHT EXCEEDS PART 375 RESTRICTED RESIDENTAIL SCOs

Compound	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives-Protection of GW	NYSDEC Part 375 Restricted Use Soil Cleanup Objectives -Restricted Residential
1,2,4-Trimethylbenzene	3.6	52
1,3,5-Trimethylbenzene	8.4	52
Ethyl Benzene	1	41
Methylene chloride	0.05	100
n-Propylbenzene	3.9	100
Toluene	0.7	100
Xylenes, Total	1.6	100
Metals, Target Analyte	mg/Kg	mg/Kg
Dilution Factor		
Selenium	3.9	180

0 30 60
SCALE, FEET

700-714 EAST 241ST STREET
BRONX, NEW YORK

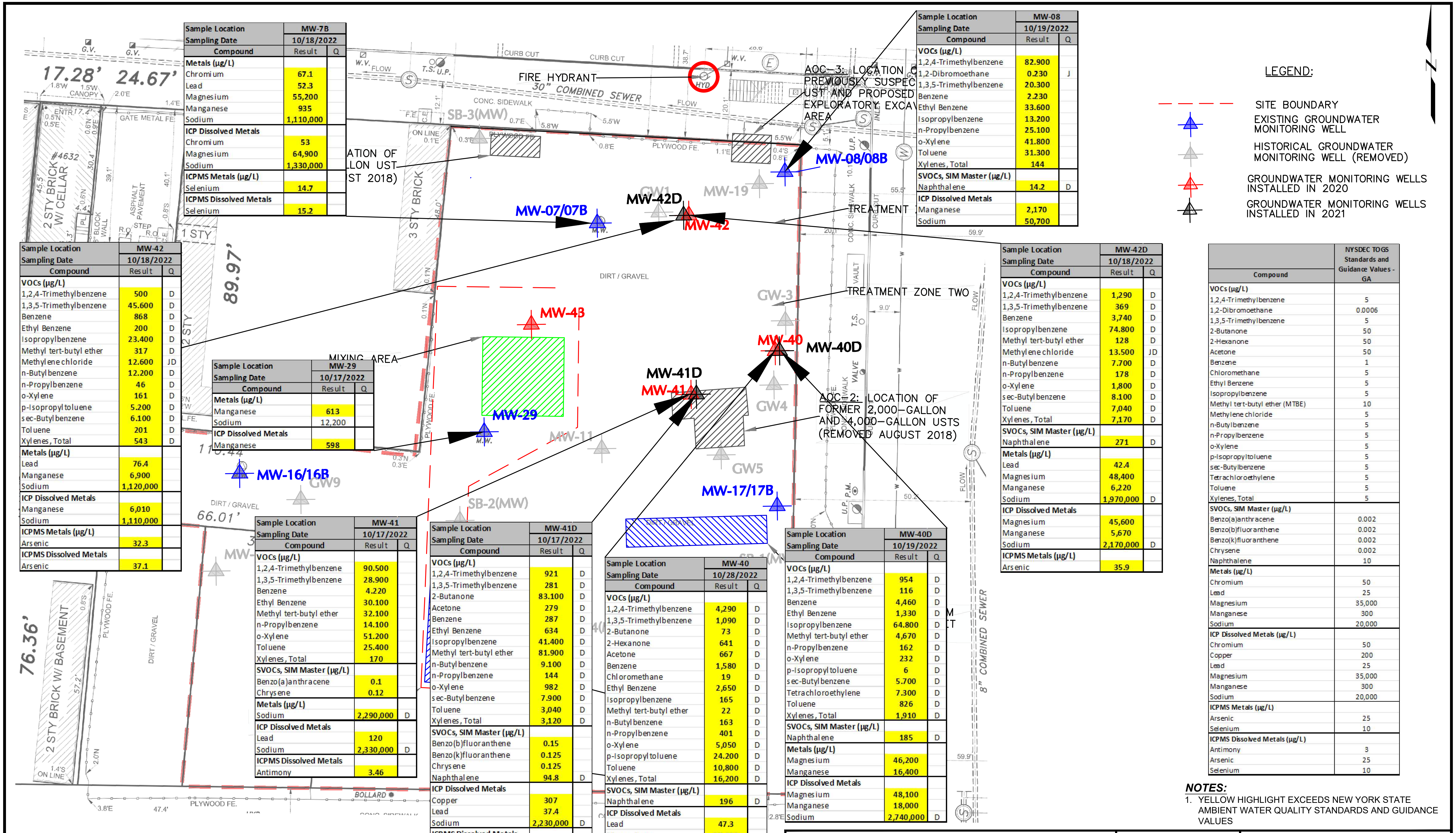
RADSON DEVELOPMENTAL BUILDERS, INC
GREAT NECK, NEW YORK

GEI Consultants

REMAINING SOIL SAMPLE EXCEEDANCES

Project 2303902 | July 2024 | Fig. 4

ROBERTSON, LEIF B:\Working\RADSON DEVELOPMENTREAL BUILDERS, INC\2303902 Enclave on 241st Development NYSDEC\00_CAD\Figures\SMP\2303902_Figure_4.dwg - 9/11/2024



Sample Location	MW-7B	
Sampling Date	10/18/2022	
Compound	Result	Q
Metals (µg/L)		
Chromium	67.1	
Lead	52.3	
Magnesium	55,200	
Manganese	935	
Sodium	1,110,000	
ICP Dissolved Metals		
Chromium	53	
Magnesium	64,900	
Sodium	1,330,000	
ICPMS Metals (µg/L)		
Selenium	14.7	
ICPMS Dissolved Metals		
Selenium	15.2	

Sample Location	MW-08	
Sampling Date	10/19/2022	
Compound	Result	Q
VOCs (µg/L)		
1,2,4-Trimethylbenzene	82.900	
1,2-Dibromoethane	0.230	J
1,3,5-Trimethylbenzene	20.300	
Benzene	2.230	
Ethyl Benzene	33.600	
Isopropylbenzene	13.200	
n-Propylbenzene	25.100	
o-Xylene	41.800	
Toluene	31.300	
Xylenes, Total	144	
SVOCs, SIM Master (µg/L)		
Naphthalene	14.2	D
ICP Dissolved Metals		
Manganese	2,170	
Sodium	50,700	

Sample Location	MW-42	
Sampling Date	10/18/2022	
Compound	Result	Q
VOCs (µg/L)		
1,2,4-Trimethylbenzene	500	D
1,3,5-Trimethylbenzene	45.600	D
Benzene	868	D
Ethyl Benzene	200	D
Isopropylbenzene	23.400	D
Methyl tert-butyl ether	317	D
Methylene chloride	12.600	JD
n-Butylbenzene	12.200	D
n-Propylbenzene	46	D
o-Xylene	161	D
p-Isopropyltoluene	5.200	D
sec-Butylbenzene	6.100	D
Toluene	201	D
Xylenes, Total	543	D
Metals (µg/L)		
Lead	76.4	
Manganese	6,900	
Sodium	1,120,000	
ICP Dissolved Metals		
Manganese	6,010	
Sodium	1,110,000	
ICPMS Metals (µg/L)		
Arsenic	32.3	
ICPMS Dissolved Metals		
Arsenic	37.1	

Sample Location	MW-29	
Sampling Date	10/17/2022	
Compound	Result	Q
Metals (µg/L)		
Manganese	613	
Sodium	12,200	
ICP Dissolved Metals		
Manganese	598	

Sample Location	MW-42D	
Sampling Date	10/18/2022	
Compound	Result	Q
VOCs (µg/L)		
1,2,4-Trimethylbenzene	1,290	D
1,3,5-Trimethylbenzene	369	D
Benzene	3,740	D
Isopropylbenzene	74.800	D
Methyl tert-butyl ether	128	D
Methylene chloride	13.500	JD
n-Butylbenzene	7.700	D
n-Propylbenzene	178	D
o-Xylene	1,800	D
sec-Butylbenzene	8.100	D
Toluene	7,040	D
Xylenes, Total	7,170	D
SVOCs, SIM Master (µg/L)		
Naphthalene	271	D
Metals (µg/L)		
Lead	42.4	
Magnesium	48,400	
Manganese	6,220	
Sodium	1,970,000	D
ICP Dissolved Metals		
Magnesium	45,600	
Manganese	5,670	
Sodium	2,170,000	D
ICPMS Metals (µg/L)		
Arsenic	35.9	

Sample Location	MW-41	
Sampling Date	10/17/2022	
Compound	Result	Q
VOCs (µg/L)		
1,2,4-Trimethylbenzene	90.500	
1,3,5-Trimethylbenzene	28.900	
Benzene	4.220	
Ethyl Benzene	30.100	
Methyl tert-butyl ether	32.100	
n-Propylbenzene	14.100	
o-Xylene	51.200	
Toluene	25.400	
Xylenes, Total	170	
SVOCs, SIM Master (µg/L)		
Benzo(a)anthracene	0.1	
Chrysene	0.12	
Metals (µg/L)		
Sodium	2,290,000	D
ICP Dissolved Metals		
Lead	120	
Sodium	2,330,000	D
ICPMS Dissolved Metals		
Antimony	3.46	

Sample Location	MW-41D	
Sampling Date	10/17/2022	
Compound	Result	Q
VOCs (µg/L)		
1,2,4-Trimethylbenzene	921	D
1,3,5-Trimethylbenzene	281	D
2-Butanone	83.100	D
Acetone	279	D
Benzene	287	D
Ethyl Benzene	634	D
Isopropylbenzene	41.400	D
Methyl tert-butyl ether	81.900	D
n-Butylbenzene	9.100	D
n-Propylbenzene	144	D
o-Xylene	982	D
sec-Butylbenzene	7.900	D
Toluene	3,040	D
Xylenes, Total	3,120	D
SVOCs, SIM Master (µg/L)		
Benzo(b)fluoranthene	0.15	
Benzo(k)fluoranthene	0.125	
Chrysene	0.125	
Naphthalene	94.8	D
ICP Dissolved Metals		
Copper	307	
Lead	37.4	
Sodium	2,230,000	D
ICPMS Dissolved Metals		
Antimony	6.11	
Arsenic	278	
Selenium	10.8	

Sample Location	MW-40	
Sampling Date	10/28/2022	
Compound	Result	Q
VOCs (µg/L)		
1,2,4-Trimethylbenzene	4,290	D
1,3,5-Trimethylbenzene	1,090	D
2-Butanone	73	D
2-Hexanone	641	D
Acetone	667	D
Benzene	1,580	D
Chloromethane	19	D
Ethyl Benzene	2,650	D
Isopropylbenzene	165	D
Methyl tert-butyl ether	22	D
n-Butylbenzene	163	D
n-Propylbenzene	401	D
o-Xylene	5,050	D
p-Isopropyltoluene	24.200	D
Toluene	10,800	D
Xylenes, Total	16,200	D
SVOCs, SIM Master (µg/L)		
Naphthalene	196	D
ICP Dissolved Metals		
Lead	47.3	
Magnesium	37,200	
Manganese	20,000	
ICPMS Dissolved Metals		
Arsenic	50	
Selenium	46.7	

Sample Location	MW-40D	
Sampling Date	10/19/2022	
Compound	Result	Q
VOCs (µg/L)		
1,2,4-Trimethylbenzene	954	D
1,3,5-Trimethylbenzene	116	D
Benzene	4,460	D
Ethyl Benzene	1,330	D
Isopropylbenzene	64.800	D
Methyl tert-butyl ether	4,670	D
n-Propylbenzene	162	D
o-Xylene	232	D
p-Isopropyltoluene	6	D
sec-Butylbenzene	5.700	D
Tetrachloroethylene	7.300	D
Toluene	826	D
Xylenes, Total	1,910	D
SVOCs, SIM Master (µg/L)		
Naphthalene	185	D
Metals (µg/L)		
Magnesium	46,200	
Manganese	16,400	
ICP Dissolved Metals		
Magnesium	48,100	
Manganese	18,000	
Sodium	2,740,000	D

Compound	NYSDEC TOGS Standards and Guidance Values - GA
VOCs (µg/L)	
1,2,4-Trimethylbenzene	5
1,2-Dibromoethane	0.0006
1,3,5-Trimethylbenzene	5
2-Butanone	50
2-Hexanone	50
Acetone	50
Benzene	1
Chloromethane	5
Ethyl Benzene	5
Isopropylbenzene	5
Methyl tert-butyl ether (MTBE)	10
Methylene chloride	5
n-Butylbenzene	5
n-Propylbenzene	5
o-Xylene	5
p-Isopropyltoluene	5
sec-Butylbenzene	5
Tetrachloroethylene	5
Toluene	5
Xylenes, Total	5
SVOCs, SIM Master (µg/L)	
Benzo(a)anthracene	0.002
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Naphthalene	10
Metals (µg/L)	
Chromium	50
Lead	25
Magnesium	35,000
Manganese	300
Sodium	20,000
ICP Dissolved Metals (µg/L)	
Chromium	50
Copper	200
Lead	25
Magnesium	35,000
Manganese	300
Sodium	20,000
ICPMS Metals (µg/L)	
Arsenic	25
Selenium	10
ICPMS Dissolved Metals (µg/L)	
Antimony	3
Arsenic	25
Selenium	10

NOTES:

1. YELLOW HIGHLIGHT EXCEEDS NEW YORK STATE AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES

SOURCE:

1. MAP FROM LANGAN ENGINEERING, ENVIRONMENTAL, SURVEYING AND LANDSCAPE ARCHITECTURE, D.P.C. REMEDIAL INVESTIGATION REPORT PREPARED IN APRIL 2016.

700-714 EAST 241ST STREET
BRONX, NEW YORK

RADSON DEVELOPMENTAL BUILDERS, INC
GREAT NECK, NEW YORK

GEI Consultants

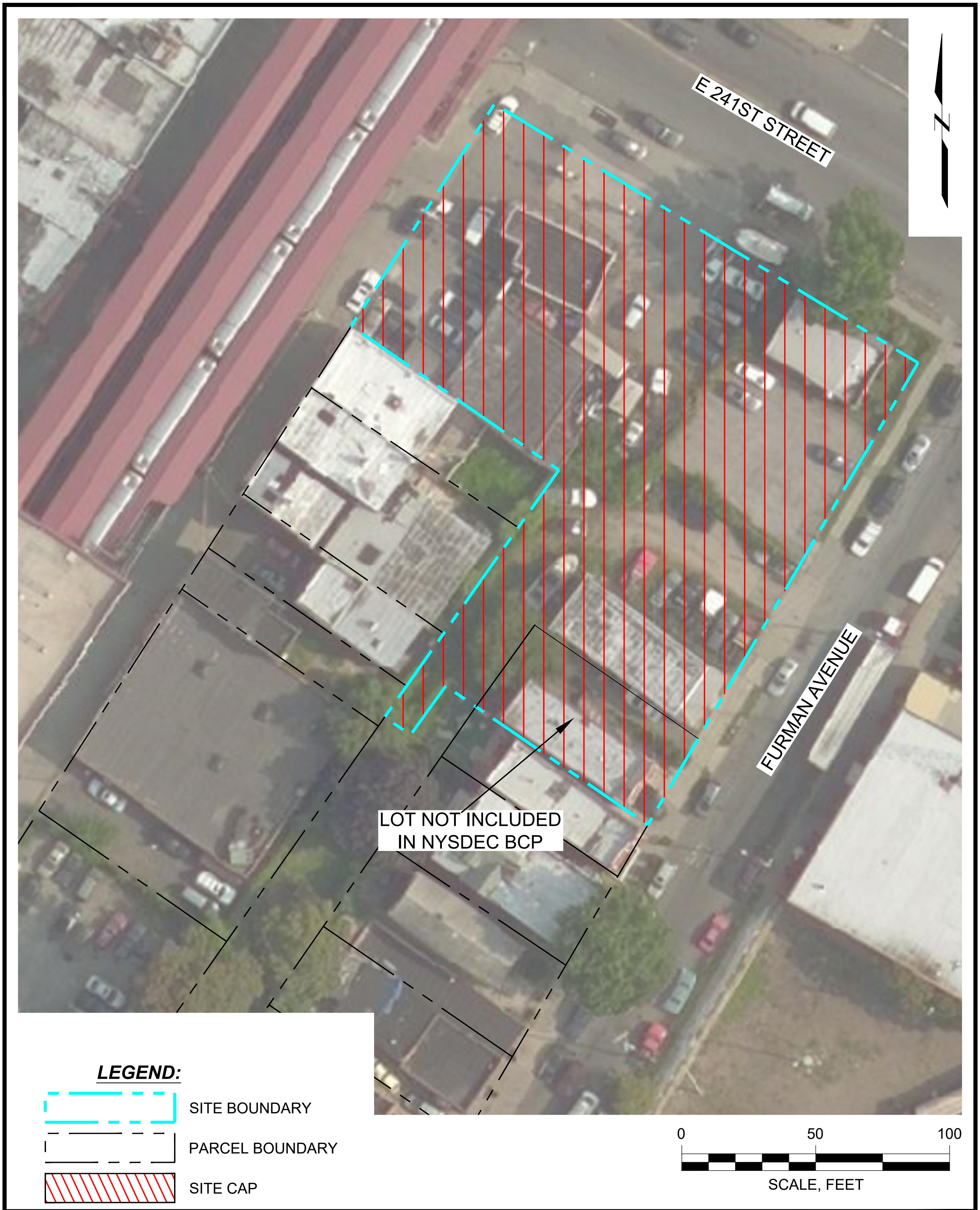
Project 2303902

GROUNDWATER SAMPLE
EXCEEDANCES

July 2024

Fig. 5

ROBERTSON, LEIF B:\Working\RADSON DEVELOPMENTREAL BUILDERS, INC\2303902 Enclave on 241st Development NYSDEC\00_CAD\Figures\SMP\2303902_Figure_5.dwg - 7/25/2024



700-714 EAST 241ST STREET
BRONX, NEW YORK

RADSON DEVELOPMENTAL BUILDERS, INC
GREAT NECK, NEW YORK

GEI Consultants

Project 2303902

SITE COVER SYSTEM

July 2024

Fig. 6

ROBERTSON, LEIF B:\Working\RADSON DEVELOPMENTREAL BUILDERS, INC\2303902 Enclave on 241st Development
NYSDEC\00_CAD\Figures\SMP\2303902_Figure_6.dwg - 7/19/2024

700-714 EAST 241ST STREET
BRONX, NEW YORK

RADSON DEVELOPMENTAL BUILDERS, INC
GREAT NECK, NEW YORK

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PROPOSED MONITORING WELL LOCATIONS

July 2024

Fig. 7

ROBERTSON, LEIF B:\Working\RADSON DEVELOPMENTREAL BUILDERS, INC\2303902 Enclave on 241st Development NYSDEC\00_CAD\Figures\SMP\2303902_Figure_7.dwg - 7/17/2024

APPENDIX A

ENVIRONMENTAL EASEMENT/NOTICE/DEED RESTRICTION

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

This page is part of the instrument. The City Register will rely on the information provided by you on this page for purposes of indexing this instrument.The information on this page will control for indexing purposes in the event of any conflict with the rest of the document.

2025021800871001001E540F

RECORDING AND ENDORSEMENT COVER PAGE

PAGE 1 OF 12

Document ID: 2025021800871001
Document Date: 02-10-2025
Preparation Date: 02-18-2025
Document Type: EASEMENT
Document Page Count: 10

PRESENTER:

ULTIMATE ABSTRACT OF NEW YORK
1383 VETERANS MEMORIAL HIGHWAY * SUITE 30
UNYRC5148B
HAUPPAUGE, NY 11788
631-501-9100
SARA.ROTH@ULTIMATEABSTRACT.COM

RETURN TO:

ULTIMATE ABSTRACT OF NEW YORK
1383 VETERANS MEMORIAL HIGHWAY * SUITE 30
UNYRC5148B
HAUPPAUGE, NY 11788
631-501-9100
SARA.ROTH@ULTIMATEABSTRACT.COM

PROPERTY DATA

Borough	Block	Lot	Unit	Address
BRONX	5087	1 Entire Lot		748 EAST 241ST STREET

Property Type: APARTMENT BUILDING

CROSS REFERENCE DATA

CRFN_______ *or* DocumentID________ *or* _______ Year_____ Reel____ Page_____ *or* File Number__________

PARTIES

GRANTOR/SELLER:

HP ENCLAVE 241 HOUSING DEVELOPMENT FUND COMPANY
253 WEST 35TH STREET, 3RD FL
NEW YORK, NY 10001

☒ Additional Parties Listed on Continuation Page

GRANTEE/BUYER:

NYS DEPARTMENT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY, 14TH FL
ALBANY, NY 12233

FEES AND TAXES

Mortgage :

Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	87.00
Affidavit Fee:	$	0.00

Filing Fee:	$	100.00
NYC Real Property Transfer Tax:	$	0.00
NYS Real Estate Transfer Tax:	$	0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK

Recorded/Filed 02-21-2025 16:27
City Register File No.(CRFN):
2025000049710

City Register Official Signature

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

2025021800871001001C568F

RECORDING AND ENDORSEMENT COVER PAGE (CONTINUATION) **PAGE 2 OF 12**

Document ID: 2025021800871001 Document Date: 02-10-2025 Preparation Date: 02-18-2025
Document Type: EASEMENT

PARTIES

GRANTOR/SELLER:
ENCLAVE 241 L.P.
111 GREAT NECK ROAD / SUITE 308
GREAT NECK, NY 11021

County: Bronx Site No: C203077 Brownfield Cleanup Agreement Index : C203077-03-15

AMENDED AND RESTATED ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36

OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made as of this 10th day of February 2025 between Owner(s), HP Enclave 241 Housing Development Fund Company Inc., (the "Grantor Fee Owner") having an office at 253 W 35th St, 3rd Floor, New York, New York 10001-1907, County of New York, State of New York, and Enclave 241 L.P., (the "Grantor Beneficial Owner), having an office at 111 Great Neck Road, Suite 308, Great Neck, New York 11021 County of Nassau, State of New York (collectively, the "Grantor"), and The People of the State of New York (the "Grantee."), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233,

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to encourage the remediation of abandoned and likely contaminated properties ("sites") that threaten the health and vitality of the communities they burden while at the same time ensuring the protection of public health and the environment; and

WHEREAS, the Legislature of the State of New York has declared that it is in the public interest to establish within the Department a statutory environmental remediation program that includes the use of Environmental Easements as an enforceable means of ensuring the performance of operation, maintenance, and/or monitoring requirements and the restriction of future uses of the land, when an environmental remediation project leaves residual contamination at levels that have been determined to be safe for a specific use, but not all uses, or which includes engineered structures that must be maintained or protected against damage to perform properly and be effective, or which requires groundwater use or soil management restrictions; and

WHEREAS, the Legislature of the State of New York has declared that Environmental Easement shall mean an interest in real property, created under and subject to the provisions of Article 71, Title 36 of the New York State Environmental Conservation Law ("ECL") which contains a use restriction and/or a prohibition on the use of land in a manner inconsistent with engineering controls which are intended to ensure the long term effectiveness of a site remedial program or eliminate potential exposure pathways to hazardous waste or petroleum; and

WHEREAS, Grantor Fee Owner, is the owner of the fee interest in the real property located at the address of 748 East 241st Street in the City of New York, County of Bronx and State of New York, known and designated on the tax map of the New York City Department of Finance as tax map parcel number: Block 5087 Lot 1, being the same as that property conveyed to Grantor by deed dated June 27, 2023 and recorded in the City Register of the City of New York as CRFN # 2023000163541. The property subject to this Environmental Easement (the "Controlled Property") comprises a portion of Block 5087 Lot 1 of approximately 0.612 +/- acres, and is hereinafter more fully described in the Land Title Survey dated December 18, 2024, prepared by David A. Shaw, which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, Grantor Beneficial Owner, is the owner of the beneficial interest in the

Controlled Property being the same as a portion of that beneficial interest conveyed to Grantor Beneficial Owner by means of a Declaration of Interest and Nominee Agreement dated Jun 22, 2023 and recorded in City Register of the City of New York as CRFN # 2023000163542; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C203077-03-15, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

1. **Purposes.** Grantor and Grantee acknowledge that the Purposes of this Environmental Easement are: to convey to Grantee real property rights and interests that will run with the land in perpetuity in order to provide an effective and enforceable means of encouraging the reuse and redevelopment of this Controlled Property at a level that has been determined to be safe for a specific use while ensuring the performance of operation, maintenance, and/or monitoring requirements; and to ensure the restriction of future uses of the land that are inconsistent with the above-stated purpose.

2. **Institutional and Engineering Controls.** The controls and requirements listed in the Department approved Site Management Plan ("SMP") including any and all Department approved amendments to the SMP are incorporated into and made part of this Environmental Easement. These controls and requirements apply to the use of the Controlled Property, run with the land, are binding on the Grantor and the Grantor's successors and assigns, and are enforceable in law or equity against any owner of the Controlled Property, any lessees and any person using the Controlled Property.

A. (1) The Controlled Property may be used for:

Restricted Residential as described in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial as described in 6 NYCRR Part 375-1.8(g)(2)(iii) and Industrial as described in 6 NYCRR Part 375-1.8(g)(2)(iv)

(2) All Engineering Controls must be operated and maintained as specified in the Site Management Plan (SMP);

(3) All Engineering Controls must be inspected at a frequency and in a manner defined in the SMP;

(4) The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the New York City Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the

Department;

(5) Groundwater and other environmental or public health monitoring must be performed as defined in the SMP;

(6) Data and information pertinent to Site Management of the Controlled Property must be reported at the frequency and in a manner defined in the SMP;

(7) All future activities on the property that will disturb remaining contaminated material must be conducted in accordance with the SMP;

(8) Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in the SMP;

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the SNIP;

(10) Access to the site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by this Environmental Easement.

B. The Controlled Property shall not be used for raising livestock or producing animal products for human consumption or Residential purposes as defined in 6NYCRR 375-1.8(g)(2)(i), and the above-stated engineering controls may not be discontinued without an amendment or extinguishment of this Environmental Easement.

C. The SMP describes obligations that the Grantor assumes on behalf of Grantor, its successors and assigns. The Grantor's assumption of the obligations contained in the SMP which may include sampling, monitoring, and/or operating a treatment system, and providing certified reports to the NYSDEC, is and remains a fundamental element of the Department's determination that the Controlled Property is safe for a specific use, but not all uses. The SMP may be modified in accordance with the Department's statutory and regulatory authority. The Grantor and all successors and assigns, assume the burden of complying with the SMP and obtaining an up-to-date version of the SNIP from:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, New York 12233
Phone: (518) 402-9553

D. Grantor must provide all persons who acquire any interest in the Controlled Property a true and complete copy of the SMP that the Department approves for the Controlled Property and all Department-approved amendments to that SMP.

E. Grantor covenants and agrees that until such time as the Environmental Easement is extinguished in accordance with the requirements of ECL Article 71, Title 36 of the ECL, the property deed and all subsequent instruments of conveyance relating to the Controlled Property shall state in at least fifteen-point bold-faced type:

This property is subject to an Environmental Easement held by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

F. Grantor covenants and agrees that this Environmental Easement shall be incorporated in full or by reference in any leases, licenses, or other instruments granting a right to use the Controlled Property.

G. Grantor covenants and agrees that it shall, at such time as NYSDEC may require, submit to NYSDEC a written statement by an expert the NYSDEC may find acceptable certifying under penalty of perjury, in such form and manner as the Department may require, that:

(1) the inspection of the site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under the direction of the individual set forth at 6 NYCRR Part 375-1.8(h)(3).

(2) the institutional controls and/or engineering controls employed at such site:

(i) are in-place;

(ii) are unchanged from the previous certification, or that any identified changes to the controls employed were approved by the NYSDEC and that all controls are in the Department-approved format; and

(iii) that nothing has occurred that would impair the ability of such control to protect the public health and environment;

(3) the owner will continue to allow access to such real property to evaluate the continued maintenance of such controls;

(4) nothing has occurred that would constitute a violation or failure to comply with any site management plan for such controls;

(5) the report and all attachments were prepared under the direction of, and reviewed by, the party making the certification;

(6) to the best of his/her knowledge **and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program, and generally accepted engineering practices; and**

(7) the information presented is accurate and complete.

3. Right to Enter and Inspect. Grantee, its agents, employees, or other representatives of the State may enter and inspect the Controlled Property in a reasonable manner and at reasonable times to assure compliance with the above-stated restrictions.

4. Reserved Grantor's Rights. Grantor reserves for itself, its assigns, representatives, and successors in interest with respect to the Property, all rights as fee owner of the Property, including:

A. Use of the Controlled Property for all purposes not inconsistent with, or limited by the terms of this Environmental Easement;

B. The right to give, sell, assign, or otherwise transfer part or all of the underlying fee interest to the Controlled Property, subject and subordinate to this Environmental Easement;

5. Enforcement

A. This Environmental Easement is enforceable in law or equity in perpetuity by Grantor, Grantee, or any affected local government, as defined in ECL Section 71-3603, against the owner of the Property, any lessees, and any person using the land. Enforcement shall not be defeated because of any subsequent adverse possession, laches, estoppel, or waiver. It is not a defense in any action to enforce this Environmental Easement that: it is not appurtenant to an interest in real property; it is not of a character that has been recognized traditionally at common law; it imposes a negative burden; it imposes affirmative obligations upon the owner of any interest in the burdened property; the benefit does not touch or concern real property; there is no privity of estate or of contract; or it imposes an unreasonable restraint on alienation.

B. If any person violates this Environmental Easement, the Grantee may revoke the Certificate of Completion with respect to the Controlled Property.

C. Grantee shall notify Grantor of a breach or suspected breach of any of the terms of this Environmental Easement. Such notice shall set forth how Grantor can cure such breach or suspected breach and give Grantor a reasonable amount of time from the date of receipt of notice in which to cure. At the expiration of such period of time to cure, or any extensions granted by Grantee, the Grantee shall notify Grantor of any failure to adequately cure the breach or suspected breach, and Grantee may take any other appropriate action reasonably necessary to remedy any breach of this Environmental Easement, including the commencement of any proceedings in accordance with applicable law.

D. The failure of Grantee to enforce any of the terms contained herein shall not be deemed a waiver of any such term nor bar any enforcement rights.

6. Notice. Whenever notice to the Grantee (other than the annual certification) or approval from the Grantee is required, **the Party providing such notice or seeking such approval shall identify the Controlled Property by referencing the following information:**

County, NYSDEC Site Number, NYSDEC Brownfield Cleanup Agreement, State Assistance Contract or Order Number, and the County tax map number or the Liber and Page or computerized system identification number.

Parties shall address correspondence to:

Site Number: C203077
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

Site Control Section
Division of Environmental Remediation
NYSDEC
625 Broadway
Albany, NY 12233

All notices and correspondence shall be delivered by hand, by registered mail or by Certified mail and return receipt requested. The Parties may provide for other means of receiving and communicating notices and responses to requests for approval.

7. **Recordation.** Grantor shall record this instrument, within thirty (30) days of execution of this instrument by the Commissioner or her/his authorized representative in the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

8. **Amendment.** Any amendment to this Environmental Easement may only be executed by the Commissioner of the New York State Department of Environmental Conservation or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

9. **Extinguishment.** This Environmental Easement may be extinguished only by a release by the Commissioner of the New York State Department of Environmental Conservation, or the Commissioner's Designee, and filed with the office of the recording officer for the county or counties where the Property is situated in the manner prescribed by Article 9 of the Real Property Law.

10. **Joint Obligation.** If there are two or more parties identified as Grantor herein, the obligations imposed by this instrument upon them shall be joint and several.

11. **Consistency with the SMP.** To the extent there is any conflict or inconsistency between the terms of this Environmental Easement and the SNIP, regarding matters specifically addressed by the SMP, the terms of the SMP will control.

Remainder of Page Intentionally Left Blank Environmental Easement Page 6

IN WITNESS WHEREOF, Grantor Fee Owner has caused this instrument to be signed in its name.

HP Enclave 241 Housing Development Fund Company Inc.:

By: Jamie aSmarr
Print Name: Jamie A. Smarr
Title: President Date: 1/22/2025

Grantor's Acknowledgment

STATE OF NEW YORK)

) ss.:

COUNTY OF NEW YORK)

On the 22nd day of January, in the year 2025 before me, the undersigned, personally appeared Jamie A. Smarr, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public - State of New York

THERESA A OMANSKY
Notary Public, State of New York
Reg. No. 02OM6427050
Qualified in Kings County
Commission Expires December 20, 2025

IN WITNESS WHEREOF, Grantor Beneficial Owner has caused this instrument to be signed in its name.

Enclave 241 L.P.:

By:____________________

Grantor's Acknowledgment

STATE OF NEW YORK)

) ss.:

COUNTY OF NASSAU)

On the 22 day of January 2025 before me, the undersigned, personally appeared Jonathan Beuttler, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

Notary Public of the State of New York

XHESIKA XHAFERRI
01XH6435630
06/27/2026

THIS ENVIRONMENTAL EASEMENT IS HEREBY ACCEPTED BY THE PEOPLE OF THE STATE OF NEW YORK, Acting By and Through the Department of Environmental Conservation as Designee of the Commissioner,

By:____________________
Andrew O. Guglielmi, Director
Division of Environmental Remediation

Grantee's Acknowledgment

STATE OF NEW YORK)
) ss.:
COUNTY OF ALBANY)

On the 10 day of February 2025 before me, the undersigned, personally appeared Andrew O. Gug lmi, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

Notary Public of the State of New York

Cheryl A. Salem
Notary Public State of New York
Registration No. 01SA0002177
Qualified in Albany County
My Commission Expires March 3, 2027

SCHEDULE "A" PROPERTY DESCRIPTION

SCHEDULE A LEGAL DESCRIPTION

ALL that certain plot, piece or parcel of land, lying and being in the County of Bronx, City and State of New York bounded and described as follows:

BEGINNING at the corner formed by the intersection of the southerly side of East 241" Street with the westerly side of Furman Avenue;

RUNNING thence southerly along the westerly side of Furman Avenue, 172.06 feet to a point;

THENCE westerly along a line, forming an interior angle of 85°-33'-26" with the westerly side of Furman Avenue, 74.06 feet to a point;

THENCE southerly along a line, forming an interior angle of 270°-00'-00" with the preceding course, 29.57 feet to a point;

THENCE westerly along a line, forming an interior angle of 90°-00'-00" with the preceding course, 13.66 feet to a point;

THENCE southerly along a line, forming an interior angle of 269°-46'-43" with the preceding course, 22.36 feet to a point;

THENCE westerly along a line, forming an interior angle of 90°-13'-17" with the preceding course, 13.75 feet to a point;

THENCE northerly along a line, forming an interior angle of 89°-33'-24" with the preceding course, 110.44 feet to a point;

THENCE westerly along a line, forming an interior angle of 270°-00'-00" with the preceding course, 93.09 feet to a the easterly side of White Plains Road;

Thence northerly along the easterly side of White Plains Road, 99.49 feet to the corner formed by the intersection of the southerly side of East 241" Street and the easterly side of White Plains Road;

THENCE easterly along the southerly side of East 241" Street, 184.29 feet to the point or place of beginning.

APPENDIX B

LIST OF SITE CONTACTS

APPENDIX B – LIST OF SITE CONTACTS

Name	Phone/Email Address
Enclave 241 L.P., Daniel Rad, Site Owner	516-730-9302 dan@rad-son.com
Nicholas Recchia, Qualified Environmental Professional, GEI Consultants, Inc., P.C.	631-760-9300 nrecchia@geiconsultants.com
Gary A. Rozmus, P.E., Remedial Engineer, GEI Consultants, Inc., P.C.	631-760-9300 grozmus@geiconsultants.com
Patrick Powers, NYSDEC Project Manager	518.402.9758 patrick.powers@dec.ny.gov
Douglas MacNeal., NYSDEC Project Manager's Supervisor	518.402.9662 douglas.macneal@dec.ny.gov
Kelly Lewandowski, NYSDEC Site Control	518-402-9553 Kelly.lewandowski@dec.ny.gov
Steven Berninger, NYSDOH Project Manager	518-402-7860 steven.berninger@health.ny.gov
Richard Leland, Akerman, LLP, Remedial Party Attorney	212-259-6417 richard.leland@akerman.com

APPENDIX C

SOIL BORING LOGS

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Log of Boring **SB07 / MW07** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/30/15	Date Finished 9/30/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 20 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples: Disturbed 4	Undisturbed 0; Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ 12.5	Completion ▼ 12; 24 HR. ▼ 12
Casing Hammer N/A; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)		Inspecting Engineer Justin Hall	
Sampler Hammer Auto; Weight (lbs) N/A	Drop (in) N/A		

Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
	Asphalt		0					
	Grey-Black gravel, f-c SAND, tr silt	0.0						
			1					Slight petroleum odor at 1'-3'
	Black-Brown, f-c SAND, tr silt, tr f gravel, tr glass, tr brick, tr concrete, tr coal ash	0.9						
			2					
		12.5		S-1	MACROCORE	30		SB07_2-3 collected at 14:10
			3					
		13.1						
	Brown, f-m SAND, tr silt, tr c sand		4					
		8.9						
	Brown, f-m SAND, tr silt, tr c sand		5					
		8.7						
			6					
		8.4						
			7					
	Brown-lt Brown, f-m SAND, tr silt, tr c sand	7.9		S-2	MACROCORE	38		
			8					
		8.1						
			9					
	Grey, f-m SAND, tr c sand	7.8						
	Grey, f-m SAND, tr c sand		10					
		6.4						
	Light Brown, f-m SAND, tr silt, tr f gravel, crushed red rocks		11					
		5.1						
	▼ ▽		12					
		0.8		S-3	MACROCORE	50		SB07_12-13 collected at 14:15
			13					
		0.9						
			14					
	Cobble, crushed red rocks		15					
		0.9						
			16					
	Brown, f-m SAND	0.8						
			17					
		0.5		S-4	MACROCORE	40		
			18					
		0.6						
			19					
	End of Boring @ 20'	0.8						
			20					

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Log of Boring **SB08 / MW08** Sheet 1 of 1

Project: Enclave on 241st Street
Project No.: 140115301
Location: 700 East 241st Street, Bronx, NY
Elevation and Datum: Approx.
Drilling Company: Aquifer Drilling and Testing, Inc.
Date Started: 9/30/15
Date Finished: 9/30/15
Drilling Equipment: Geoprobe 6610 DT
Completion Depth: 20 ft
Rock Depth: N/E
Size and Type of Bit: N/A
Number of Samples: Disturbed 4 Undisturbed 0 Core 0
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ▽ 9.5 Completion ▼ 9.5 24 HR. ▼ 9.5
Casing Hammer: N/A Weight (lbs): N/A Drop (in): N/A
Drilling Foreman: Chris Migliore
Sampler: 2" Macrocore (5' long)
Inspecting Engineer: Justin Hall
Sampler Hammer: Auto Weight (lbs): N/A Drop (in): N/A

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt Grey gravel, f-c SAND, tr silt	24.1	0	S-1	MACROCORE	45		
		Grey f-c SAND, tr silt Black- dk Brown, f-c SAND, sm silt, tr f gravel, tr coal ash, tr brick	74.3	1					
			88.9	2					Sample SB08_2-3 collected at 9:30 Slight odor at 2'-4'
			98.7	3					
		Brown-Grey, f-m SAND, tr silt, tr f gravel, tr c sand	78.4	4					
		Brown-Grey, f-m SAND, tr silt, tr f gravel, tr c sand	69.9	5	S-2	MACROCORE	50		
			62.4	6					
		Brown- lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand	63.1	7					
			61.9	8					
		▼	2478	9					Sample SB08_9-10 collected at 9:35
		Brown-lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand	2200	10	S-3	MACROCORE	60		
			798	11					Strong petroleum odor 8'-15'
			724	12					
			531	13					
			198	14					
		Cobble, grey stone	132	15	S-4	MACROCORE	60		
		Brown- lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand	125	16					
			98.1	17					
		Cobble, grey/red stone	78.2	18					
		Grey, f-c SAND, tr silt, tr f gravel End of Boring at 20'	71.8	19					
				20					

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Log of Boring **SB09** Sheet 1 of 1

Project Enclave on 241st Street			Project No. 140115301		
Location 700 East 241st Street, Bronx, NY			Elevation and Datum Approx.		
Drilling Company Aquifer Drilling and Testing, Inc.			Date Started 9/30/15	Date Finished 9/30/15	
Drilling Equipment Geoprobe 6610 DT			Completion Depth 20 ft	Rock Depth N/E	
Size and Type of Bit N/A			Number of Samples	Disturbed 4	Undisturbed 0
					Core 0
Casing Diameter (in) N/A		Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 13.5	Completion ▼ N/A
					24 HR. ▼ N/A
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore		
Sampler 2" Macrocore (5' long)					
Sampler Hammer Auto	Weight (lbs) N/A	Drop (in) N/A	Inspecting Engineer Justin Hall		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab		0					
		Black-Grey-Brown, f-c SAND, tr silt, sm f gravel, tr brick, tr concrete, tr asphalt, tr woody debris, tr coal ash	0.0		S-1	MACROCORE	15		
				1					
			.9						
				2					
			1.3						
				3					
			2.0						
				4					
			2.7						
		Black-Grey-Brown, f-c SAND, tr silt, tr f gravel, tr brick, tr concrete, tr asphalt, tr woody debris, tr coal ash		5	S-2	MACROCORE	25		Slight odor at 2'-7'
			16.9						
				6					
			425						
				7					
		Black-Grey, m-c SAND	824						
		Grey, f-m SAND, tr silt, tr f gravel		8					
			1680						
				9					
			2400						Sample SB09_9-10 collected at 15:55
		Grey f-m SAND, tr silt, tr f gravel		10	S-3	MACROCORE	50		
			1700						
				11					Strong petroleum odor at 7'-15'
			2060						
				12					
			1980						
		▽		13					
		Brown, f-m SAND, tr silt, tr f gravel	2400						Sample SB09_13-14 collected at 16:00
				14					
			2010						
		Brown, f-m SAND, tr silt, tr f gravel		15	S-4	MACROCORE	60		
			192						
				16					
			90						
				17					
			42.1						
				18					
			31.7						
				19					
		End of Boring @ 20'	20.1 11.1						
				20					

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Log of Boring **SB-1(MW)** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 1/23/15	Date Finished 1/23/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 16 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples	Disturbed 4 / Undisturbed 0 / Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 10 / Completion ▼ / 24 HR. ▼
Casing Hammer N/A / Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Tommy Sheerin	
Sampler 2" Macrocore (4' long)			
Sampler Hammer Auto / Weight (lbs) N/A	Drop (in) N/A	Inspecting Engineer Justin Hall / Stephen Clout	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
■		Asphalt Brown F-M SAND, sm silt	0.0	0	S-1	MACROCORE	37		
▨		Brown-black F-C SAND, sm silt tr f. gravel sm black silt, tr brick, tr concrete, tr glass, tr coal tar	0.0	1					
▨			0.0	2					1'-3' - petroleum odor
▨			0.0	3					Collect Sample SB-1(MW) from 2.5'-4.5'
░		Brown f-c SAND, sm silt, tr f. gravel	0.0	4	S-2	MACROCORE	28		
░			0.0	5					
░			0.0	6					
░		Gray to brown f-c SAND, sm silt, tr f. gravel	17.8	7					7'-8' - petroleum odor
░		Gray brown f-m SAND, sm silt, tr f. gravel	0.0	8	S-3	MACROCORE	40		Collect Sample SB-1(MW) from 7'-9' 8'-9.5' - petroleum odor
░		Brown f-m SAND, sm silt, tr c. sand, tr f. gravel ▽	0.0	9					
░			0.0	10					
░			0.0	11					
░		Brown f-m SAND, sm silt, tr clay	0.0	12	S-4	MACROCORE	48		
░			0.0	13					
░			0.0	14					
░		Brown f-c SAND, tr silt, tr clay	0.0	15					
		End of Boring @ 16'		16					
				17					
				18					
				19					
				20					

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Log of Boring **SB10** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/30/15	Date Finished 9/30/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 20 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples: Disturbed 4	Undisturbed 0 Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ 12	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer N/A Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)			
Sampler Hammer Auto Weight (lbs) N/A	Drop (in) N/A	Inspecting Engineer Justin Hall	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete slab		0	S-1	MACROCORE	45		
		Grey-Brown, f-c SAND, tr silt, tr f gravel, tr brick, tr concrete, tr asphalt, tr glass	222						
		Brown, f-c SAND, sm silt, tr f gravel, tr brick, tr coal ash, tr clay	23.8 18.3 58.1	1 2 3					
		Brown, f-m SAND, tr silt, tr f gravel	68.7	4					
		Brown, f-m SAND, tr silt, tr f gravel	20.9 25.5	5 6	S-2	MACROCORE	60		
		Dk Brown, f SAND, tr m sand, sm silt		7					Petroleum odor at 4'-14'
		Lt Brown, f-m SAND	69.9						
		Grey, f-m SAND, tr silt	131 250	8 9					Sample SB10_8-9 collected at 16:50
		Grey, f-m SAND, tr silt, tr c sand, tr f gravel	313	10 11	S-3	MACROCORE	60		
		Brown-Grey, f-m SAND, tr silt, tr f gravel, tr c sand ▽	415 231	12 13					Sample SB10_11-12 collected at 16:55
		Brown, f-m SAND, tr silt, tr f gravel, tr c sand	83.0 69.1	14					
		Cobble, white stone		15	S-4	MACROCORE	60		
		Brown, f-m SAND, tr silt, tr c sand, tr f gravel	48.1 32.1	16					
		Cobble, white stone		17					
		Brown, f-m SAND, tr f gravel End of boring @ 20'	21.7 18.9 19.1	18 19 20					

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Log of Boring **SB11 / MW11** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/29/15	Date Finished 9/29/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 20 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples	Disturbed 4 / Undisturbed 0 / Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 12.5 / Completion ▼ 11.8 / 24 HR. ▼ 11.8
Casing Hammer N/A / Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)		Inspecting Engineer Justin Hall	
Sampler Hammer Auto / Weight (lbs) N/A	Drop (in) N/A		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt Dk Brown-Black, f-c SAND, tr silt, tr f gravel, tr brick, tr ash, tr glass, tr concrete, tr woody debris	0.8	0					
			2.7	1					
		Brown, f-c SAND, tr silt, tr f gravel, tr brick, tr glass, small cobble at 4.5'	3.8	2	S-1	MACROCORE	42		
			4.9	3					
			5.7	4					
		Brown, f-c SAND, tr silt, tr f gravel, tr brick, tr glass	4.9	5					
		Brown-lt Brown, f-m SAND, tr silt, tr f gravel	6.7	6					
			5.3	7	S-2	MACROCORE	60		
		Grey-Brown, f-m SAND, tr silt, tr f gravel	15.3	8					Slight petroleum odor at 8'-10'
			6.9	9					Sample SB11_8.5-9.5 collected at 13:50
		Grey, f-m SAND, tr silt, tr f gravel Brown-lt Brown, f-c SAND, tr silt, tr f gravel	7.4	10					
		▼	9.8	11					
		▽	8.9	12	S-3	MACROCORE	60		Sample SB11_12-13 collected at 13:55
			6.4	13					
		Lt-dk Brown, f-m SAND, tr silt, tr f gravel	6.7	14					
		Lt-dk Brown, f-m SAND, tr silt, tr f gravel	5.1	15					
		Lt Brown, m-c SAND, tr f gravel	6.9	16					
		Lt Brown, f-m SAND, sm silt, tr f gravel	6.2	17	S-4	MACROCORE	60		
			6.0	18					
		End of boring @ 20'	5.4	19					
				20					

LANGAN Log of Boring **SB12** Sheet 1 of 1

Project Enclave on 241st Street	Project No. 140115301
Location 700 East 241st Street, Bronx, NY	Elevation and Datum Approx.
Drilling Company Aquifer Drilling and Testing, Inc.	Date Started 9/28/15 — Date Finished 9/28/15
Drilling Equipment Geoprobe 6610 DT	Completion Depth 20 ft — Rock Depth N/E
Size and Type of Bit N/A	Number of Samples — Disturbed 4 — Undisturbed 0 — Core 0
Casing Diameter (in) N/A — Casing Depth (ft) N/A	Water Level (ft.) — First ▽ 12 — Completion ▼ N/A — 24 HR. ▼ N/A
Casing Hammer N/A — Weight (lbs) N/A — Drop (in) N/A	Drilling Foreman Chris Migliore
Sampler 2" Macrocore (5' long)	Inspecting Engineer Justin Hall
Sampler Hammer Auto — Weight (lbs) N/A — Drop (in) N/A	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Grey-Black, f-c SAND, tr silt, tr f gravel, tr brick, tr woody debris, tr concrete, tr metal, tr glass	4.4 4.8	0 1 2	S-1	MACROCORE	43		Surficial staining in vicinity of boring Faint odor at 0'-2.5' Sample SB12_1-2 collected at 13:50
		Small cobble	4.5						
		Grey-Black, f-m SAND, tr silt, tr f gravel, tr red sand	4.3	3					
		Brown-lt Brown, f-m SAND, tr silt, tr f gravel, tr red sand	3.8	4					
		Brown-lt Brown, f-m SAND, tr silt, tr f gravel, tr red sand	3.4 1.8 1.7 1.2 1.0	5 6 7 8 9	S-2	MACROCORE	24		
		Lt Brown, f-m SAND, tr silt, tr f gravel, intrusion of m sand @ 12.5' ▽	1.4 0.2 0.1	10 11 12	S-3	MACROCORE	51		Sample SB12_11.5-12.5 collected at 13:55
		Lt Brown, f-m SAND, sm silt, tr f gravel	0.0 0.0	13 14					
		Lt Brown, f-m SAND, sm silt, tr f gravel, tr c sand	0.0 0.0 0.0	15 16 17	S-4	MACROCORE	60		
		Lt Brown, f-m SAND, sm silt, sm f gravel, tr c sand	0.0	18 19					
		Lt Brown, f-c SAND, tr silt, sm f gravel	0.0	20					

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Log of Boring **SB13 / MW13** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/28/15	Date Finished 9/28/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 20 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples: Disturbed 4	Undisturbed 0 Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ 14.5	Completion ▼ 13.9 24 HR. ▼ 13.4
Casing Hammer N/A Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)		Inspecting Engineer Justin Hall	
Sampler Hammer Auto Weight (lbs) N/A	Drop (in) N/A		

Sample Description	PID Reading (ppm)
Topsoil- Brown-dk Brown, f-c SAND, tr silt, tr f gravel, sm organic matter, tr roots, tr brick	4.9
Concrete block/pad	19.0
Lt Brown, m-f SAND, tr silt,	14.3 18.8
Lt Brown, f SAND, tr silt, tr f gravel	13.8
Lt Brown, f-m SAND, tr silt, tr f gravel	17.0 16.2
Small cobble	
Lt Brown, f-c SAND, tr silt, tr f gravel	29.1
Lt Brown, f-c SAND, sm silt, tr f gravel	29.2
Brown, f-c SAND, tr silt	45.1
Brown, f-c SAND, tr silt	15.4
Brown, f-c SAND, tr silt, tr f gravel	28.0 29.3
Brown, f-c SAND, sm silt, tr f gravel ▼ ▼ ▽	35.9 68.1
Lt Brown, f-m SAND, sm silt	10.0 10.7 10.3
End of boing @ 20'	10.0

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

Number	Type	Recov. (in)	Penetr. resist BL/6in
S-1	MACROCORE	31	
S-2	MACROCORE	60	
S-3	MACROCORE	42	
S-4	MACROCORE	50	

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

Sample SB13_9-10 collected at 10:00

Refusal @ 14' assumed to be concrete foundation of building, offest 5' south

Resample 10'-15' at offset

Sample SB13_14-15 collected at 10:05

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Log of Boring **SB14** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/28/15	Date Finished 9/28/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 20 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples	Disturbed 4 / Undisturbed 0 / Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 12 / Completion ▼ N/A / 24 HR. ▼ N/A
Casing Hammer N/A	Weight (lbs) N/A / Drop (in) N/A	Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)			
Sampler Hammer Auto	Weight (lbs) N/A / Drop (in) N/A	Inspecting Engineer Justin Hall	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
■		Asphalt		0	S-1	MACROCORE	51		
▨		Dk Brown-Black, f-c SAND, tr silt, tr gravel, tr brick, tr woody debris, tr concrete	0.0 0.9	1					
▨		Brown- dk Brown, f-c SAND, tr f gravel, tr silt	0.0 3.9	2 3					Sample SB14_2-3 collected at 12:10
░		Dk Brown- Grey, f-m SAND, sm silt, tr f gravel, tr red sand	6.7	4					
░		Dk Brown-Grey, f-m SAND, sm silt, tr f gravel, tr red sand	6.1	5	S-2	MACROCORE	60		
░		Lt Brown, f-m SAND, tr silt, tr red sand	7.8 11.0 11.3 11.7	6 7 8 9					
░		Lt Brown, f-m SAND, tr silt, tr red sand	2.1	10	S-3	MACROCORE	51		
░		Lt Brown, f-m SAND, sm silt, tr f gravel ▽	3.0 0.8	11 12					Sample SB14_11.5-12.5 collected at 12:15
░		Dk Brown, m SAND		13					
░		Lt Brown-Brown, f-m SAND, sm silt, tr f gravel	0.7 1.0	14					
░		Lt Brown, f-m SAND, sm silt, tr f gravel	0.9 1.1 0.7	15 16 17	S-4	MACROCORE	60		
░		Grey f-m SAND		18					
░		Lt Brown, f-m SAND, sm silt, tr f gravel End of boring @ 20'	1.0 1.0	19 20					

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Log of Boring **SB15 / MW15** Sheet 1 of 1

Project: Enclave on 241st Street		Project No.: 140115301	
Location: 700 East 241st Street, Bronx, NY		Elevation and Datum: Approx.	
Drilling Company: Aquifer Drilling and Testing, Inc.		Date Started: 9/29/15	Date Finished: 9/29/15
Drilling Equipment: Geoprobe 6610 DT		Completion Depth: 17 ft	Rock Depth: N/E
Size and Type of Bit: N/A		Number of Samples: Disturbed 4 / Undisturbed 0 / Core 0	
Casing Diameter (in): N/A	Casing Depth (ft): N/A	Water Level (ft.): First ∇ 12 / Completion ▼ 11.7 / 24 HR. ∇ 11.7	
Casing Hammer: N/A	Weight (lbs): N/A / Drop (in): N/A	Drilling Foreman: Chris Migliore	
Sampler: 2" Macrocore (5' long)		Inspecting Engineer: Justin Hall	
Sampler Hammer: Auto	Weight (lbs): N/A / Drop (in): N/A		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Gravel parking- Grey, f GRAVEL, sm f-c sand, tr silt		0	S-1	MACROCORE	50		
		Dk Brown-Black, f-c SAND, tr silt, tr f gravel, tr brick, tr glass, tr concrete, tr ceramic, tr ash	0.0						
				1					
			2.5						
				2					
			5.3						
				3					Sample SB15_2.5-3.5 and DUP2 collected at 12:00
		Brown-lt Brown, f-c SAND, tr silt, tr f gravel	2.7						
				4					
			3.4						
		Lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand		5	S-2	MACROCORE	51		
			2.7						
				6					
			1.4						
		Lt Brown, f-m SAND, tr silt		7					
			1.9						
				8					
			2.0						
		Lt Brown, f-m SAND, sm silt, tr f gravel		9					
			1.7						
		Lt Brown, f-m SAND, sm silt, tr f gravel		10	S-3	MACROCORE	60		
			2.1						
		Lt Brown, c SAND, tr f gravel		11					
		Lt Brown, f-m SAND, sm silt, tr f gravel ▼ ∇	1.8						
				12					Sample SB15_11.5-12.5 collected at 12:05
			1.1						
				13					
			0.3						
				14					
			0.2						
		Lt Brown, f-m SAND, sm silt, tr f gravel		15	S-4	MACROCORE	60		
			0.0						
				16					
		Grey rock	0.0						
		Refusal @ 17'		17					
			0.0						
				18					
			0.0						
				19					
			0.0						
				20					

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Log of Boring **SB16 / MW16** Sheet 1 of 1

Project	Enclave on 241st Street	Project No.	140115301
Location	700 East 241st Street, Bronx, NY	Elevation and Datum	Approx.
Drilling Company	Aquifer Drilling and Testing, Inc.	Date Started	9/29/15
		Date Finished	9/29/15
Drilling Equipment	Geoprobe 6610 DT	Completion Depth	20 ft
		Rock Depth	N/E
Size and Type of Bit	N/A	Number of Samples	Disturbed 4 Undisturbed 0 Core 0
Casing Diameter (in)	N/A	Water Level (ft.)	First ▽ 12 Completion ▼ 12.5 24 HR. ▼ 12.5
Casing Depth (ft)	N/A	Drilling Foreman	Chris Migliore
Casing Hammer	N/A	Inspecting Engineer	Justin Hall
Weight (lbs)	N/A		
Drop (in)	N/A		
Sampler	2" Macrocore (5' long)		
Sampler Hammer	Auto		
Weight (lbs)	N/A		
Drop (in)	N/A		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Topsoil- dk Brown, f-c SAND, tr silt, tr f gravel, sm organic matter, tr woody debris, tr brick, tr ash, tr concrete		0	S-1	MACROCORE	60		
			0.0						
		Dk Grey-Black, f-c SAND, tr silt, tr f gravel, tr brick, tr concrete, tr ash, tr ceramics, tr glass		1					
			3.4						
				2					
			11.2						
				3					Petroleum odor at 3'-4'
			90.7						Sample SB16_3-4 collected at 11:00
		Dk Brown-lt Brown, f-c SAND, tr silt, tr f gravel		4					
			12.7						
		Dk Brown-lt Brown, f-c SAND, tr silt, tr f gravel		5	S-2	MACROCORE	52		
			26.5						
				6					
			15.6						
				7					
			8.8						
				8					
		Lt Brown, m SAND, tr silt	3.5						
		Dk-lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand		9					
			2.9						
		Dk-lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand		10	S-3	MACROCORE	55		
			18.9						
				11					
			9.3						
		▽		12					Sample SB16_11.5-12.5 collected at 11:05
		▼	6.5						
		Lt Brown, m SAND, tr silt, tr f sand		13					
		Dk-lt Brown, f-m SAND, sm silt, tr f gravel, tr c sand	4.2						
				14					
			3.1						
		Dk Brown, f-m SAND, tr silt, tr f gravel, tr c sand		15	S-4	MACROCORE	60		
			0.8						
				16					
			0.3						
				17					
			0.4						
				18					
			0.0						
				19					
		End of boring @ 20'	0.0						
				20					

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Log of Boring **SB17 / MW17** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/29/15	Date Finished 9/29/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 20 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples	Disturbed 4 / Undisturbed 0 / Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 12 / Completion ▼ 11.7 / 24 HR. ▼ 11.7
Casing Hammer N/A	Weight (lbs) N/A / Drop (in) N/A	Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)		Inspecting Engineer Justin Hall	
Sampler Hammer Auto	Weight (lbs) N/A / Drop (in) N/A		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Concrete sidewalk		0					
		Grey gravel, sm f-c SAND, tr silt, tr brick, tr black sand	17.1 19.4	1 2	S-1	MACROCORE	52		
		Brown-Grey, f-m SAND, tr silt, tr f gravel, tr c sand, tr brick, tr ceramic, tr glass, tr coal ash	32.1 102 32.3	3 4					Sample SB17_3.5-4.5 and DUP3 collected at 15:00
		Grey, m-c SAND		5	S-2	MACROCORE	60		
		Brown-Grey, f-m SAND, tr silt, tr f gravel, tr c sand small cobble @ 9.5	14.9 18.7 30.3 52.9 27.8	6 7 8 9					
		Brown-Grey, f-m SAND, tr silt, tr f gravel, tr c sand ▼▽	27.0 18.4	10 11	S-3	MACROCORE	53		
		Brown-lt Brown, f-m SAND, sm silt, tr f gravel small cobble @ 13.5	13.2 12.7 15.4	12 13 14					Sample SB17_11.5-12.5 collected at 15:05
		Brown-lt Brown, f-m SAND, sm silt, tr f gravel, tr c sand small cobble @ 17	17.1 16.1	15 16	S-4	MACROCORE	51		
		Lt Brown-Grey, f-m SAND, tr silt, tr f gravel, tr c sand	12.3 13.9	17 18 19					
		End of boring @ 20'	9.7	20					

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Log of Boring **SB18** Sheet 1 of 1

Project: Enclave on 241st Street
Project No.: 140115301
Location: 700 East 241st Street, Bronx, NY
Elevation and Datum: Approx.
Drilling Company: Aquifer Drilling and Testing, Inc.
Date Started: 9/30/15
Date Finished: 9/30/15
Drilling Equipment: Geoprobe 6610 DT
Completion Depth: 20 ft
Rock Depth: N/E
Size and Type of Bit: N/A
Number of Samples: Disturbed 4 Undisturbed 0 Core 0
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ▽ 13.5 Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A
Weight (lbs): N/A
Drop (in): N/A
Drilling Foreman: Chris Migliore
Sampler: 2" Macrocore (5' long)
Inspecting Engineer: Kyle Zalaski
Sampler Hammer: Auto
Weight (lbs): N/A
Drop (in): N/A

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt	0	0					
		Brown, f-c SAND, sm silt, tr f gravel	0						
		Cobble	0	1					
		Brick	0						
		Cobble	0	2					
		Brown-Grey, f-c SAND, tr silt, tr f gravel, dry	0	3 4 5	S-1	MACROCORE	30		
		Cobble	0						
		Lt Brown, f-m SAND, sm silt, dry	0	6					
		Brown, f-m SAND, little silt, tr f gravel, dry	0 0	7	S-2	MACROCORE	36		Sample SB18_6-7 collected at 14:00
		Brown, f-c SAND, tr silt, tr f gravel, dense, moist ▽	0 0 0 0 0	8 9 10 11 12 13	S-3	MACROCORE	48		Sample SB18_11-12 & MS/MSD collected at 14:05 MS/MSD identified as MS/MSD-S001_9.30.15
		Cobble	0						
		Brown, f-m SAND, tr silt, tr f gravel, wet	0 0 0 0 0 0	14 15 16 17 18	S-4	MACROCORE	42		
		End of boring @ 20'		19 20					

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Log of Boring **SB19 / MW19** Sheet 1 of 2

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/30/15	Date Finished 9/30/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 24 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples: Disturbed 5; Undisturbed 0; Core 0	
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ 10; Completion ▼ 10.2; 24 HR. ▼ 10.2	
Casing Hammer N/A; Weight (lbs) N/A; Drop (in) N/A		Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)			
Sampler Hammer Auto; Weight (lbs) N/A; Drop (in) N/A		Inspecting Engineer Justin Hall	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt		0					
		Grey gravel, f-c SAND, tr silt, tr balck silt	54.1		S-1	MACROCORE	30		
		Brown-Grey, f-c SAND, tr silt, tr f gravel, tr brick	28.7	1					
		Lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand, tr concrete	69.1	2 3 4					Slight petroleum odor 3'-7'
		Lt Brown-Grey, f-m SAND, tr silt, tr f gravel	71.0 33.5	5 6	S-2	MACROCORE	60		Sample SB19_4.5-5.5 collected at 10:45
		Lt Brown-Grey silty, f-m SAND, tr silt, tr f gravel	787	7					Stong petroleum odor 7'-20'
		Lt Brown-Grey, f-m SAND, tr silt, tr f gravel ▽ ▼	3102 3380 3000	8 9					Slight sheen on wet soil 8'-17' Sample SB19_9-10 collected at 10:50
		Lt Brown-Grey, f-m SAND, sm silt, tr f gravel	2900 2810 2250	10 11 12	S-3	MACROCORE	60		
		Grey, m-c SAND, tr silt	1170	13					
		Brown-lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand, tr red stone	1007 800	14					
		Lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand	2170 1750	15 16	S-4	MACROCORE	55		
		Cobble, grey stone	1390	17					
		Brown-lt Brown, f-m SAND, tr f gravel, tr silt, tr c sand	1720 1070	18 19					
				20					

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Log of Boring **SB19 / MW19** Sheet 2 of 2

Project Enclave on 241st Street	Project No. 140115301
Location 700 East 241st Street, Bronx, NY	Elevation and Datum Approx.

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
					Number	Type	Recov. (in)	Penetr. resist BL/6in		
▨		Brown-lt Brown, f-c SAND, tr silt, tr f gravel		20						
▨			84.5	21						
▨			72.1	22	S-5	MACROCORE	25			
▨		Refusal @ 24'	69.9	23						
			31.6	24						
				25						
				26						
				27						
				28						
				29						
				30						
				31						
				32						
				33						
				34						
				35						
				36						
				37						
				38						
				39						
				40						
				41						
				42						
				43						
				44						
				45						

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Log of Boring **SB-2(MW)** Sheet 1 of 1

Project: Enclave on 241st Street		Project No.: 140115301	
Location: 700 East 241st Street, Bronx, NY		Elevation and Datum: Approx.	
Drilling Company: Aquifer Drilling and Testing, Inc.		Date Started: 1/23/15	Date Finished: 1/23/15
Drilling Equipment: Geoprobe 6610 DT		Completion Depth: 16 ft	Rock Depth: N/E
Size and Type of Bit: N/A		Number of Samples: Disturbed 4	Undisturbed 0 Core 0
Casing Diameter (in): N/A	Casing Depth (ft): N/A	Water Level (ft.): First ▽ 11	Completion ▼ 24 HR. ▼
Casing Hammer: N/A	Weight (lbs): N/A Drop (in): N/A	Drilling Foreman: Tommy Sheerin	
Sampler: 2" Macrocore (4' long)		Inspecting Engineer: Justin Hall / Stephen Clout	
Sampler Hammer: Auto	Weight (lbs): N/A Drop (in): N/A		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨		Gray-Black F-C SAND, tr silt, tr f gravel, tr brick, tr coal tar	0.0	0	S-1	MACROCORE	40		
▨			0.0	1					
▨			0.0	2					0'-3.5' - petroleum odor Collect Sample SB-2(MW) from 1.5'-3.5'
▨		Brown F-M SAND, tr silt, tr c-sand	0.0	3					
⁘		Brown F-M SAND, sm silt, tr c. sand, tr f. gravel	0.0	4	S-2	MACROCORE	40		
⁘			0.0	5					
⁘			0.0	6					
⁘			0.0	7					
⁘		Brown F-C SAND, tr silt	0.0	8	S-3	MACROCORE	40		
⁘		Brown F-M SAND, sm silt, tr clay, tr f. gravel	0.0	9					Collect Sample SB-2(MW) from 8'-10'
⁘		▽	0.0	10					
⁘			0.0	11					
⁘		Brown F-M SAND, sm silt, sm clay	0.0	12	S-4	MACROCORE	40		
⁘			0.0	13					
⁘			0.0	14					
⁘			0.0	15					
		End of Boring @ 16'		16					
				17					
				18					
				19					
				20					

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Log of Boring **SB20** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/30/15	Date Finished 9/30/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 20 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples	Disturbed 4 Undisturbed 0 Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 12 Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer N/A Weight (lbs) N/A Drop (in) N/A		Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)			
Sampler Hammer Auto Weight (lbs) N/A Drop (in) N/A		Inspecting Engineer Justin Hall	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt		0	S-1	MACROCORE	20		
		Grey gravel, f-c SAND, tr silt, tr brick, tr concrete	0	1					
		Brown-lt Brown, f-m SAND, tr silt, tr f gravel	100 213 400	2 3 4					Slight petroleum odor 2'-11' Sample SB20_2-3 collected at 12:15
		Brown-lt Brown, f-m SAND, sm silt, tr f gravel							
		Brown-lt Brown, f-m SAND, sm silt, tr f gravel	143	5	S-2	MACROCORE	50		
		Grey, f-m SAND, tr silt, tr f gravel	83.2 62.9	6 7					
		Brown-Grey, m-c SAND, tr silt, tr f gravel	76.4	8					
		Brown-Grey, f-m SAND, tr silt, tr f gravel	97.0	9					
		Brown-Grey, f-c SAND, tr silt, tr f gravel	130	10 11	S-3	MACROCORE	60		
		Brown, f-m SAND, tr silt, tr f gravel ▽	222 136	12					Sample SB20_11-12 collected at 12:20
		Cobble Grey, red stone		13					
		Brown, f-m SAND, tr silt, tr f gravel	38.3 116	14					
		Brown, f-m SAND, tr silt, tr f gravel, tr c sand	140 67.9	15 16	S-4	MACROCORE			
		Cobble, grey stone		17					
		Brown-Reddish Brown, f-m SAND, tr silt, tr f gravel	93.7 39.8 50.4 39.0	18 19					
		End of boring @ 20'		20					

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Log of Boring **SB21** Sheet 1 of 1

Project Enclave on 241st Street			Project No. 140115301		
Location 700 East 241st Street, Bronx, NY			Elevation and Datum Approx.		
Drilling Company Aquifer Drilling and Testing, Inc.			Date Started 9/30/15		Date Finished 9/30/15
Drilling Equipment Geoprobe 6610 DT			Completion Depth 20 ft		Rock Depth N/E
Size and Type of Bit N/A			Number of Samples	Disturbed 4	Undisturbed 0 Core 0
Casing Diameter (in) N/A		Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 12	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore		
Sampler 2" Macrocore (5' long)					
Sampler Hammer Auto	Weight (lbs) N/A	Drop (in) N/A	Inspecting Engineer Kyle Zalaski		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data				Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
					Number	Type	Recov. (in)	Penetr. resist BL/6in	
		Concrete Brown-Grey, f-c SAND, tr silt, tr f gravel, dry	140	0	S-1	MACROCORE	42		
		Brown, f-m SAND, tr silt, tr f gravel	116	1					Sample SB21_0.5-1.5 collected at 16:40
		Brown, f-c SAND, little silt, tr f gravel, tr asphalt, dry	25.2	2					
		Brown, f-m SAND, little silt	16.7	3					
			38.4	4					
			25.2	5	S-2	MACROCORE	48		5'-9' Sand particels become finer with depth
			16.4	6					
			12.9	7					
			21.6	8					
		Brown, f-c SAND, little silt, tr f gravel, moist		9					
			15.1	10	S-3	MACROCORE	40		Sample SB21_10-11 collected at 16:45
		▽	9.7	11					
		Brown, f-c SAND, little silt, little gravel, dense, wet	0	12					
		Brown-Grey, f-c SAND, little silt, tr f gravel, dense wet	0	13					
				14					
			0	15	S-4	MACROCORE	44		
			0	16					
			0	17					
		End of boring @ 20'	0	18					
				19					
				20					

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Log of Boring **SB22** Sheet 1 of 1

Project	Enclave on 241st Street		Project No.	140115301	
Location	700 East 241st Street, Bronx, NY		Elevation and Datum	Approx.	
Drilling Company	Aquifer Drilling and Testing, Inc.		Date Started	9/30/15	Date Finished 9/30/15
Drilling Equipment	Geoprobe 6610 DT		Completion Depth	20 ft	Rock Depth N/E
Size and Type of Bit	N/A		Number of Samples	Disturbed 4	Undisturbed 0 Core 0
Casing Diameter (in)	N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 10.5	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer	N/A	Weight (lbs) N/A Drop (in) N/A	Drilling Foreman	Chris Migliore	
Sampler	2" Macrocore (5' long)		Inspecting Engineer	Kyle Zalaski	
Sampler Hammer	Auto	Weight (lbs) N/A Drop (in) N/A			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
■		Asphalt		0	S-1	MACROCORE	36		
▨		Brown-lt Brown, f-c SAND, tr silt, tr f gravel	0						
▨		Brown-lt Brown, f-m SAND, sm silt, tr f gravel, tr brick	0 0 0	1					
⁙		Brown-lt BRown, f-m SAND, sm silt, tr f gravel	0 0 0	5	S-2	MACROCORE	50		
⁙		Grey, f-c SAND, little f gravel, tr silt, dry	426 323 406	8					Strong petroleum-like odors from 8'-13.5' Sample SB22_8-9 collected at 13:10
⁙		Grey, f-m SAND, tr silt, wet ▽	2000 2500 2450	10	S-3	MACROCORE	48		Sample SB22_10-11 collected at 13:15
⁙		Lt Grey, f-m SAND, tr silt, wet		13					
⁙		Brown-grey, f-m SAND, sm silt, dense, wet	1785						
⁙		Brown-Grey, f-c SAND, sm silt, tr f gravel	255 178 354	14	S-4	MACROCORE	30		Slight petroleum-like odor from 15'-17.5'
		End of boring @ 20'	36.9	17.5					
				20					

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Log of Boring **SB23** Sheet 1 of 1

Project: Enclave on 241st Street		Project No.: 140115301	
Location: 700 East 241st Street, Bronx, NY		Elevation and Datum: Approx.	
Drilling Company: Aquifer Drilling and Testing, Inc.		Date Started: 9/29/15	Date Finished: 9/29/15
Drilling Equipment: Geoprobe 6610 DT		Completion Depth: 20 ft	Rock Depth: N/E
Size and Type of Bit: N/A		Number of Samples: Disturbed 4	Undisturbed 0 Core 0
Casing Diameter (in): N/A	Casing Depth (ft): N/A	Water Level (ft.): First ▽ 12	Completion ▼ N/A 24 HR. ▼ N/A
Casing Hammer: N/A	Weight (lbs): N/A Drop (in): N/A	Drilling Foreman: Chris Migliore	
Sampler: 2" Macrocore (5' long)			
Sampler Hammer: Auto	Weight (lbs): N/A Drop (in): N/A	Inspecting Engineer: Justin Hall	

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt		0	S-1	MACROCORE	33		
		Grey-Black gravely, f-c SAND, tr brick, tr glass	21.5						
		Black, f-c SAND, tr f gravel, tr brick, tr concrete, tr coal ash	23.6	1					
		Brown-Grey, f-m SAND, sm silt, tr f gravel, tr brick	28.9 22.1 20.5	2 3 4					
		Brown-Grey, f-m SAND, tr silt, tr f gravel	20.1 29.3	5 6 7	S-2	MACROCORE	47		
		Brown, f-m SAND, tr silt, tr f gravel	27.4 50.1 43.1	8 9					Slight petroleum odor from 8'-10' Sample SB23_8.5-9.5 collected at 16:30
		Brown, f-m SAND, tr silt, tr f gravel	21.3	10 11	S-3	MACROCORE	60		
		Brown, f-m SAND, sm silt, tr f gravel small cobble @ 14' ▽	19.8 21.4 19.8	12 13					Sample SB23_11.5-12.5 collected at 16:35
		Brown, f-m SAND, tr silt, tr f gravel, tr c sand	17.8	14					
		Brown,f-m SAND, tr silt, tr f gravel, tr c sand	11.4 6.3	15 16	S-4	MACROCORE	60		
		Cobble, red/pink stone	3.9	17					
		Brown, f-m SAND, tr silt, tr f gravel, tr c sand End of boring @ 20'	5.1 4.1	18 19 20					

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Log of Boring **SB24** Sheet 1 of 1

Project	Enclave on 241st Street	Project No.	140115301
Location	700 East 241st Street, Bronx, NY	Elevation and Datum	Approx.
Drilling Company	Aquifer Drilling and Testing, Inc.	Date Started	9/29/15
		Date Finished	9/29/15
Drilling Equipment	Geoprobe 6610 DT	Completion Depth	20 ft
		Rock Depth	N/E
Size and Type of Bit	N/A	Number of Samples	Disturbed 4 Undisturbed 0 Core 0
Casing Diameter (in)	N/A	Water Level (ft.)	First ▽ 11.5 Completion ▼ N/A 24 HR. ▼ N/A
Casing Depth (ft)	N/A		
Casing Hammer	N/A	Drilling Foreman	Chris Migliore
Weight (lbs)	N/A		
Drop (in)	N/A		
Sampler	2" Macrocore (5' long)	Inspecting Engineer	Justin Hall
Sampler Hammer	Auto		
Weight (lbs)	N/A		
Drop (in)	N/A		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Topsoil- Dk Brown, f-c SAND, tr silt, tr f gravel, organic matter, tr woody debris, tr brick, tr glass, tr ash	4.7	0	S-1	MACROCORE	55		
		Dk Brown-Black, f-c SAND, tr silt, tr f gravel, tr brick, tr glass, tr ash, tr ceramics	5.2	1					
		Dk-li Brown, f-c SAND, tr silt, tr f gravel	4.4	2					
		Lt Brown, f-m SAND, sm silt, tr f gravel	4.7	3					
			5.9	4					Sample SB24_3.5-4.5 collected at 9:45
		Lt Brown, f-m SAND, tr silt, tr f gravel	4.1	5	S-2	MACROCORE	60		
			3.7	6					
		Lt Brown, f-m SAND, sm silt, tr f gravel, tr c sand	3.4	7					
			1.7	8					
			0.9	9					
		Lt Brown, f-m SAND, sm silt, tr f gravel, tr c sand	6.3	10	S-3	MACROCORE	60		
		▽	4.1	11					Sample SB24_11-12 collected at 9:50
			1.1	12					
			0.0	13					
		Lt Brown, m SAND, tr silt	0.0	14					
		Lt Brown, m SAND, tr silt	0.0	15	S-4	MACROCORE	60		
		Lt Brown silty, f-m SAND, tr f gravel	0.0	16					
			0.0	17					
			0.0	18					
		End of boring @ 20'	0.0	19					
				20					

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Log of Boring **SB25** Sheet 1 of 1

Project Enclave on 241st Street	Project No. 140115301
Location 700 East 241st Street, Bronx, NY	Elevation and Datum Approx.
Drilling Company Aquifer Drilling and Testing, Inc.	Date Started 9/29/15 Date Finished 9/29/15
Drilling Equipment Geoprobe 6610 DT	Completion Depth 5 ft Rock Depth N/E
Size and Type of Bit N/A	Number of Samples: Disturbed 1; Undisturbed 0; Core 0
Casing Diameter (in) N/A Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E; Completion ▼ N/E; 24 HR. ▼ N/E
Casing Hammer N/A Weight (lbs) N/A Drop (in) N/A	Drilling Foreman Chris Migliore
Sampler 2" Macrocore (5' long)	
Sampler Hammer Auto Weight (lbs) N/A Drop (in) N/A	Inspecting Engineer Justin Hall

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨		Topsoil- Dk Brown, f-c SAND, tr silt, tr f gravel, sm organic matter, tr woody debris, tr ash	0.0	0 1	S-1	MACROCORE	50		
▩		Black-Brown, f-c SAND, tr silt, tr f gravel, tr brick, tr concrete	0.0	2					Sample SB25_1-2 collected at 8:00
░		Brown-lt Brown, f-m SAND, tr silt, tr f gravel, tr c sand	25.7 31.7	3					
░		Lt Brown, f-m SAND, tr silt End of boring @ 5'	10.4	4 5					
				6 7 8 9 10 11 12 13 14 15 16 17 18 19 20					

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Log of Boring **SB26** Sheet 1 of 1

Project Enclave on 241st Street			Project No. 140115301		
Location 700 East 241st Street, Bronx, NY			Elevation and Datum Approx.		
Drilling Company Aquifer Drilling and Testing, Inc.			Date Started 9/29/15	Date Finished 9/29/15	
Drilling Equipment Geoprobe 6610 DT			Completion Depth 5 ft	Rock Depth N/E	
Size and Type of Bit N/A			Number of Samples	Disturbed 1	Undisturbed 0 / Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A		Water Level (ft.)	First ▽ N/E	Completion ▼ N/E / 24 HR. ▼ N/E
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore		
Sampler 2" Macrocore (5' long)			Inspecting Engineer Justin Hall		
Sampler Hammer Auto	Weight (lbs) N/A	Drop (in) N/A			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in		Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨		Topsoil- Dk Brown, f-c SAND, tr silt, tr f gravel, sm organic matter, tr woody debris, tr glass	0.0	0 1	S-1	MACROCORE	44			
▨		Dk Brown-Black, f-c SAND, tr silt, tr f gravel, tr brick, tr concrete, tr ash, tr ceramics	0.9 3.5	2						Sample SB26_1-2 collected at 8:15
▨		Brown-lt Brown, f-c SAND, tr silt, tr f gravel	4.7	3 4						
		End of boring @ 5'	3.1	5						
				6 7 8 9 10 11 12 13 14 15 16 17 18 19 20						

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Log of Boring **SB27** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/29/15	Date Finished 9/29/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 5 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples: Disturbed 1; Undisturbed 0; Core 0	
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E; Completion ▼ N/E; 24 HR. ▼ N/E	
Casing Hammer N/A; Weight (lbs) N/A; Drop (in) N/A		Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)		Inspecting Engineer Justin Hall	
Sampler Hammer Auto; Weight (lbs) N/A; Drop (in) N/A			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Topsoil- Brown-dk Brown, f-c SAND, tr silt, tr f gravel, sm organic matter, tr woody debris, tr brick, tr ash, tr glass	3.1	0	S-1	MACROCORE	50		Faint petroleum odor from 1'-2' Sample SB27_1-2 collected at 8:45
		Dk Brown-Black, f-c SAND, tr silt, tr f gravel, tr brick, tr ash, tr woody debris, tr glass	10.7 10.9	1 2					
		Dk Brown, f-c SAND, tr silt, tr f gravel	11.2	3					
		Lt Brown, f-m SAND, tr silt, tr f gravel End of boring @ 5'	9.9	4 5					
				6 7 8 9 10 11 12 13 14 15 16 17 18 19 20					

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Log of Boring **SB28** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 9/30/15	Date Finished 9/30/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 5 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples: Disturbed 1	Undisturbed 0; Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.): First ▽ N/E	Completion ▼ N/E; 24 HR. ▼ N/E
Casing Hammer N/A; Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore	
Sampler 2" Macrocore (5' long)		Inspecting Engineer Justin Hall	
Sampler Hammer Auto; Weight (lbs) N/A	Drop (in) N/A		

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data: Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Topsoil- Dk Brown, f-c SAND, tr silt, tr f gravel, sm organic matter, tr woody debris, tr brick, tr concrete	0.8	0	S-1	MACROCORE	54		
▨		Black-dk Brown, f-c SAND, tr silt, tr f gravel, tr brick, tr concrete, tr coal ash, tr glass, tr ceramics	7.8	1					Sample SB28_1-2 collected at 8:30
		Brown-lt Brown, f-m SAND, tr silt, tr f gravel	27.4	2					
			12.8	3					
		End of boring @ 5'	13.4	4					
				5					
				6					
				7					
				8					
				9					
				10					
				11					
				12					
				13					
				14					
				15					
				16					
				17					
				18					
				19					
				20					

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Log of Boring **SB29 / MW29** Sheet 1 of 2

Project Enclave on 241st Street			Project No. 140115301		
Location 700 East 241st Street, Bronx, NY			Elevation and Datum Approx.		
Drilling Company Aquifer Drilling and Testing, Inc.			Date Started 9/28/15	Date Finished 9/28/15	
Drilling Equipment Geoprobe 6610 DT			Completion Depth 25 ft	Rock Depth N/E	
Size and Type of Bit N/A			Number of Samples	Disturbed 5	Undisturbed 0	Core 0
Casing Diameter (in) N/A		Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 12	Completion ▼ 12.5	24 HR. ▼ 12.1
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Chris Migliore		
Sampler 2" Macrocore (5' long)			Inspecting Engineer Justin Hall		
Sampler Hammer Auto	Weight (lbs) N/A	Drop (in) N/A			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
░ ▨		Concrete pad Lt Brown-Grey, f-c SAND, sm silt, tr f gravel, tr glass, tr brick	0.3	0	S-1	MACROCORE	39		
▨		Grey-Black, f-c SAND, sm silt, tr f gravel, tr glass, tr brick, tr woody debris	1.2	1					
▨			1.7	2					
░		Brown, f-m SAND, sm silt, tr f gravel, tr c sand	1.9	3					
░			2.0	4					
░		Brown, f-m SAND, sm silt, tr f gravel, tr c sand	0.7	5	S-2	MACROCORE	28		
░		Brown-Grey, f-m SAND, tr silt, tr f gravel	0.8	6					Petroleum odor from 6'-10'
░			8.7	7					
░			105	8					
░			142	9					Sample SB29_9-10 collected at 15:25
░		C SAND intrusion Brown-Grey, f-m SAND, tr silt, tr f gravel, intrustion of c sand at 13'	109	10	S-3	MACROCORE	42		Petroleum odor from 10'-15'
░			153	11					
░		▽ ▼	100	12					Sample SB29_11.5-12.5 collected at 15:30
░			68.7	13					
░		Grey, f-m SAND, tr silt, tr f gravel, tr c sand	42.1	14					
░		Grey, f-m SAND, tr silt, tr f gravel, tr c sand	30.5	15	S-4	MACROCORE	38		Petroleum odor from 15'-20'
░			27.8	16					
░			71.2	17					
░			90.1	18					Saturated at 18'-20'
░			93.7	19					
				20					

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Log of Boring **SB29 / MW29** Sheet 2 of 2

Project	Project No.
Enclave on 241st Street	140115301
Location	**Elevation and Datum**
700 East 241st Street, Bronx, NY	Approx.

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data					Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
					Number	Type	Recov. (in)	Penetr. resist BL/6in		
		Grey, f-m SAND, tr silt, tr f gravel, tr c sand	1.1	20	S-5	MACROCORE	40			Faint odor from 20'-21'
			0.9	21						
			0.8	22						
		Grey, f-c SAND, sm silt, sm f gravel	0.7	23						
		End of boring @ 25'	0.8	24						
				25						
				26						
				27						
				28						
				29						
				30						
				31						
				32						
				33						
				34						
				35						
				36						
				37						
				38						
				39						
				40						
				41						
				42						
				43						
				44						
				45						

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Log of Boring **SB-3(MW)** Sheet 1 of 1

Project Enclave on 241st Street			Project No. 140115301		
Location 700 East 241st Street, Bronx, NY			Elevation and Datum Approx.		
Drilling Company Aquifer Drilling and Testing, Inc.			Date Started 1/23/15	Date Finished 1/23/15	
Drilling Equipment Geoprobe 6610 DT			Completion Depth 16 ft	Rock Depth N/E	
Size and Type of Bit N/A			Number of Samples	Disturbed 4	Undisturbed 0	Core 0
Casing Diameter (in) N/A		Casing Depth (ft) N/A	Water Level (ft.)	First ▽ 12	Completion ▼	24 HR. ▼
Casing Hammer N/A	Weight (lbs) N/A	Drop (in) N/A	Drilling Foreman Tommy Sheerin		
Sampler 2" Macrocore (4' long)			Inspecting Engineer Justin Hall / Stephen Clout		
Sampler Hammer Auto	Weight (lbs) N/A	Drop (in) N/A			

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in	Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt		0					
		Brown-gray F-C SAND, tr silt, tr f. gravel, tr glass, tr coal tar, tr concrete	0.0		S-1	MACROCORE	20		
			0.0	1					
			0.0	2					Collect Sample SB-3(MW) from 1'-3'
		Brown F-M SAND sm silt, tr f. gravel	0.0	3					
		Brown F-C SAND tr silt, tr f. gravel	0.0	4	S-2	MACROCORE	32		
		Brown F-M SAND sm silt, tr f. gravel	0.0	5					
			0.0	6					
			0.0	7					
		Brown F-M SAND sm silt, tr c. sand	0.3	8	S-3	MACROCORE	38		
		Brown-Red-Gray F-C SAND, tr silt, tr f. gravel, reddish sand/silt	0.5	9					
			0.6	10					8.5'-12' - petroleum odor
		▽	28.6	11					
		Brown-Red-Black F-C SAND, tr silt, tr clay	374	12	S-4	MACROCORE	20		Collect Sample SB-3(MW) + DUP-1 from 11'-13'
			495	13					12'-16' - petroleum odor
			985	14					
			1095	15					
		End of Boring @ 16'		16					
				17					
				18					
				19					
				20					

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Log of Boring **SB-4(MW)** Sheet 1 of 1

Project: Enclave on 241st Street
Project No.: 140115301
Location: 700 East 241st Street, Bronx, NY
Elevation and Datum: Approx.
Drilling Company: Aquifer Drilling and Testing, Inc.
Date Started: 1/23/15
Date Finished: 1/23/15
Drilling Equipment: Geoprobe 6610 DT
Completion Depth: 20 ft
Rock Depth: N/E
Size and Type of Bit: N/A
Number of Samples: Disturbed 5 Undisturbed 0 Core 0
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ▽ 9 Completion ▼ 24 HR. ▽
Casing Hammer: N/A Weight (lbs): N/A Drop (in): N/A
Drilling Foreman: Tommy Sheerin
Sampler: 2" Macrocore (4' long)
Inspecting Engineer: Justin Hall / Stephen Clout
Sampler Hammer: Auto Weight (lbs): N/A Drop (in): N/A

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Sample Data Type	Sample Data Recov. (in)	Sample Data Penetr. resist BL/6in		Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
		Asphalt Brown-Black F-C SAND sm silt, tr f. gravel, tr concrete, tr brick	0.0	0	S-1	MACROCORE	40			
			0.1	1						
			0.2	2						Collect Sample SB-4(MW) from 1.5'-3.5'
		Gray F-M SAND, sm silt	0.0	3						
		Brown F-M SAND, sm silt, tr f. gravel	0.0	4	S-2	MACROCORE	40			
			0.0	5						
			0.0	6						
			0.0	7						Collect Sample SB-4(MW) from 6'-8'
		Brown F-M SAND, sm silt ▽	0.0	8	S-3	MACROCORE	40			
			0.0	9						
			0.0	10						
		Brown F-C SAND, sm silt	0.0	11						
		Brown F-C SAND, sm silt, tr clay	0.0	12	S-4	MACROCORE	40			
			0.0	13						
			0.0	14						
			0.0	15						
		Brown F-C SAND, sm silt, tr clay	0.0	16	S-5	MACROCORE	37			
			0.0	17						
		Brown SILT, f. sand, sm clay	0.0	18						
		End of Boring @ 20'	0.0	19						
				20						

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Log of Boring **SB-5** Sheet 1 of 1

Project: Enclave on 241st Street
Project No.: 140115301
Location: 700 East 241st Street, Bronx, NY
Elevation and Datum: Approx.
Drilling Company: Aquifer Drilling and Testing, Inc.
Date Started: 1/23/15
Date Finished: 1/23/15
Drilling Equipment: Geoprobe 6610 DT
Completion Depth: 20 ft
Rock Depth: N/E
Size and Type of Bit: N/A
Number of Samples: Disturbed 5; Undisturbed 0; Core 0
Casing Diameter (in): N/A
Casing Depth (ft): N/A
Water Level (ft.): First ▽ 16; Completion ▼; 24 HR. ▽
Casing Hammer: N/A
Weight (lbs): N/A
Drop (in): N/A
Drilling Foreman: Tommy Sheerin
Sampler: 2" Macrocore (4' long)
Inspecting Engineer: Justin Hall / Stephen Clout
Sampler Hammer: Auto
Weight (lbs): N/A
Drop (in): N/A

MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in		Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▩		Brown-Gray F-C SAND, tr silt, sm f. gravel, tr brick, tr glass, tr coal tar	0.0	0						
			0.0	1						
			0.0	2	S-1	MACROCORE	38			Collect Sample SB-5 from 1'-3'
		Piece of concrete	0.0	3						
░		Brown F-C SAND, tr silt, sm f. gravel	0.0	4						
		Brown F-M SAND, sm silt, tr f. gravel, tr c. sand	0.0	5						
			0.0	6	S-2	MACROCORE	40			
			0.0	7						
		Brown F-M SAND, sm silt, tr f. gravel, sm c. sand	0.0	8						
			0.0	9						
			0.0	10	S-3	MACROCORE	40			
			0.0	11						
		Brown F-M SAND, sm silt, tr f. gravel	0.0	12						
			0.0	13						
			0.0	14	S-4	MACROCORE	38			
		▽	0.0	15						Collect Sample SB-5 from 14'-16'
		Brown F-C SAND, sm silt, tr f. gravel Intrusions of cobbles and c. sand	0.0	16						
			0.0	17						
			0.0	18	S-5	MACROCORE	37			
		End of Boring @ 20'	0.0	19						
				20						

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Log of Boring **SB-6** Sheet 1 of 1

Project Enclave on 241st Street		Project No. 140115301	
Location 700 East 241st Street, Bronx, NY		Elevation and Datum Approx.	
Drilling Company Aquifer Drilling and Testing, Inc.		Date Started 1/23/15	Date Finished 1/23/15
Drilling Equipment Geoprobe 6610 DT		Completion Depth 4 ft	Rock Depth N/E
Size and Type of Bit N/A		Number of Samples	Disturbed 1 Undisturbed 0 Core 0
Casing Diameter (in) N/A	Casing Depth (ft) N/A	Water Level (ft.)	First ▽ N/E Completion ▼ 24 HR. ▽
Casing Hammer N/A Weight (lbs) N/A Drop (in) N/A		Drilling Foreman Tommy Sheerin	
Sampler 2" Macrocore (4' long)		Inspecting Engineer Justin Hall / Stephen Clout	
Sampler Hammer Auto Weight (lbs) N/A Drop (in) N/A			

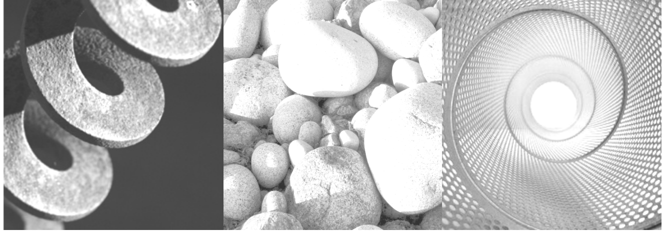
MATERIAL SYMBOL	Elev. (ft)	Sample Description	PID Reading (ppm)	Depth Scale	Sample Data Number	Type	Recov. (in)	Penetr. resist BL/6in		Remarks (Drilling Fluid, Depth of Casing, Fluid Loss, Drilling Resistance, etc.)
▨		Brown-Black F-C SAND, sm silt, tr f. gravel, tr brick, tr glass	0.0	0	S-1	MACROCORE	32			
▨			0.0	1						Collect Sample SB-6 from 0'-2'
▨		Brown F-M SAND, sm silt, tr c. sand	0.0	2						
▨			0.0	3						
		End of Boring @ 4'		4						
				5						
				6						
				7						
				8						
				9						
				10						
				11						
				12						
				13						
				14						
				15						
				16						
				17						
				18						
				19						
				20						

APPENDIX D

EXCAVATION WORK PLAN

APPENDIX E

HEALTH AND SAFETY PLAN



Consulting
Engineers and
Scientists

Construction Health and Safety Plan

Enclave on 241st Development
NYSDEC BCP Site No. C203077
714 East 241st Street
Bronx, NY 10470

Submitted to:
J207TH ST / MFC REALTY
15 Verbena Avenue, 2nd Floor
Floral Park, New York, 11001

Submitted by:
GEI Consultants, Inc., P.C.
1000 New York Avenue, Suite B
Huntington Station, NY 11746
631-760-9300

July 2024
Project 2303902

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C. Heat and Cold Stress Guidelines
D. Forms
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1. Emergency Contact Information

Table 1. Emergency Contact Information

Important Phone Numbers	
Local Police:	911
Fire Department:	911
Ambulance:	911
NYPD 47th Precinct	(718) 920-1211
Hospital and Occupational Clinic Information *(See Attached Maps and Directions in Appendix A)*	
Montefiore Mount Vernon Hospital 12 N. 7th Avenue Mount Vernon, New York 10550 **Urgent Care/Occupational Health Clinic: Contact Medcor Triage**	(914) 664-8000 Call Medcor Triage 1-800-775-5866
Contacts	
Project Manager: Nicholas J. Recchia, P.G.	(631) 760-9300 office (516) 395-8763 cell
Safety Director: Steve Hawkins	(860) 368-5348 office (860) 916-4167 cell
Regional Safety Manager: Jessica Papageorge	(973) 873-7117 office (862) 432-2283 cell
Site Safety Manager: Leif Robertson	(631) 760-9300 office (631) 275-4865 cell
Medcor Triage	1-800-775-5866
Client Contact: Dan Rad	(516) 7300-9300 office
Other Information	
Contractor Requesting/Performing Utility Clearance: Utility Clearance Ticket Number:	TBD To be provided
Nearest Telephone Location (or alternate means of communication)	On-site Cellular

2. Background

Project Name: NYSDEC BCP Site No. C203077
Project Location: 714 East 241st Street, Bronx, NY 10470
GEI Project No: 2303902

This Construction Health and Safety Plan (CHASP) establishes policies and procedures to protect GEI personnel from the potential hazards posed by the activities at the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) Site No. C03077, Enclave on 241st Development (Site) located at 714 East 241st Street, Bronx, NY 10470. Reading and sign off (Section 13) of the CHASP is required of on-site GEI personnel and will be reviewed by GEI subcontractors. Subcontractors will prepare their own site-specific CHASP and may use this as a guide. The plan identifies measures to minimize accidents and injuries, which may result from project activities or during adverse weather conditions. A copy of this CHASP will be maintained on site for the duration of the work.

Included in Section 1 and Appendix A is a route to the nearest medical facility from the Site with directions and contact information. Safety data sheets ([SDSs] formerly known as Material Safety Data Sheets [MSDS]), specific to chemicals that may be encountered while working at the Site, are in Appendix B. Appendix C details the signs, symptoms, care and procedures to both heat and cold stress. Appendix D includes the Tailgate Safety Briefing form, the Project Safety Briefing form, the Accident/Incident Report Form and the Near Miss Reporting Form. Appendix E contains applicable GEI Health and Safety (H&S) Standard Operating Procedures (SOPs) for the Site.

2.1 Scope of Field Work

The scope of field work covered under this CHASP includes the post-remedial actions to be implemented in accordance with the SMP and all concurrent redevelopment activities, which consist of the following:

1. Implementation of a Community Air Monitoring Program (CAMP) for particulates and volatile organic compounds (VOCs) during monitoring well installation and any excavation at the Site.
2. Limited excavation in landscaping areas to accommodate tree and shrub plantings.

3. Screening for indications of contamination (by visual means, odor, and monitoring with photoionization detector [PID]) of all excavated soil during any intrusive Site work.
4. Appropriate off-Site disposal of all material removed from the Site in accordance with all federal, state, and local rules and regulations for handling, transport, and disposal. Waste disposal facilities will be selected based on the data that has been collected to date and Waste Classification soil sampling. Based on the requirements of the selected facilities, additional soil waste characterization samples may be collected and analyzed as needed to obtain approval for soil disposal.
5. In landscaped areas of the Site, clean fill meeting the requirements of 6 New York Codes, Rules and Regulations (NYCRR) Part 375-6.7(d) will be brought in to replace the excavated soil and establish at least 2-feet of clean soil beneath the designed grades at the Site. On-Site soil which does not exceed the above-noted excavation criteria (RRUSCOs) or the protection of groundwater SCOs for any constituent may be used elsewhere on-Site, including below the water table to regrade the Site.
6. All responsibilities associated with the Site Management, including permitting requirements and pretreatment requirements, will be addressed in accordance with all applicable federal, state, and local rules and regulations.
7. Submission of Groundwater Sample Results, Soil Vapor Intrusion Evaluation Results, and Periodic Review Reports (PRRs) that describe post-remedial activities, certifies remedial requirements are still being met, and lists any deviations from the SMP, if applicable.

2.2 Site Description

The project site consists of Block 5087, Lot 1 on the New York City Tax Map and is an approximately 24,060-square-foot irregularly shaped lot that includes approximately 100 feet of frontage along White Plains Road, 185 feet of frontage along 241st Street, and 135 feet of frontage along Furman Avenue. The New York City Transit Authority (NYCTA) #2 rail corridor and elevated station platform are located above grade along the northwestern property line.

Currently, the entire Site is an active redevelopment site encircled by construction fence. Following completion of the new residential construction, the Site building will encompass the Site. Concrete covered sidewalks, a permeable paver walkway, and paved roadways will be constructed to the around the proposed building.

3. Statement of Safety and Health Policy

GEI is committed to providing a safe and healthy work environment for its employees. To maintain a safe work environment, GEI has established an organizational structure and a Corporate Health and Safety Program to promote the following objectives:

- Reduce the risk of injury, illness, and loss of life to GEI employees.
- Maintain compliance with federal, state, and other applicable safety regulations; and minimize GEI employees' work exposure to potential physical, chemical, biological, and radiological hazards.

Safety policy and procedure on any one project cannot be administered, implemented, monitored, and enforced by any one individual. The total objective of a safe, accident-free work environment can only be accomplished by a dedicated, concerted effort by every individual involved with the project from management down to all employees.

Each GEI employee must understand their value to the company; the costs of accidents, both monetary, physical, and emotional; the objective of the safety policy and procedures; the safety rules that apply to the safety policy and procedures; and what their individual role is in administering, implementing, monitoring, and compliance of their safety policy and procedures. This allows for a more personal approach to compliance through planning, training, understanding, and cooperative effort, rather than by strict enforcement. If for any reason an unsafe act persists, strict enforcement will be implemented.

4. Hazard/Risk Analysis

The potential hazards associated with site conditions and activity hazards related to GEI on-site activities have been identified in this section.

4.1 Special Site Conditions or Concerns

Traffic: The majority of traffic on the project site prior to building completion will be construction traffic. Following construction completion, there will be minimal on-site traffic. Potential traffic hazards will consist of off-site adjoining NYC roadways.

Drill Rig/Equipment: Drilling contractor will use track-mounted rotary drill rigs. Specific attention given to rotating equipment, pinch points, and overhead equipment.

Safety Equipment will include: first aid kit, fire extinguisher, eye wash bottles, adequate supply of drinking water and electrolyte fluids, hand cleaner, insect repellent, sunscreen, and cell phone.

4.2 Activity Hazard Analysis

The potential hazards for this project associated with site conditions and activity hazards associated with GEI on-site activities have been identified in Table 2. General hazards and control measures that are applicable to all site activities are identified in the General Hazards section. The site-specific tasks, potential hazards, and control measures established to reduce the risk of injury or illness are identified in the Activity Hazard section of Table 2. Health and Safety SOPs for routine hazards and common site conditions are referenced in the table below and included in Appendix E.

Table 2. Activity Hazard Analysis

General Hazards These Hazards Apply to All Site Activities	Control Measure
Chemical/Contaminant Exposure Skin and eye injury/irritation	• Wear protective coveralls (e.g., Tyvek ®) with shoe covers, safety glasses, face shield, Nitrile gloves. • Dispose of gloves after use and wash hands. • Avoid contact with pooled liquids and limit contact with contaminated soils/groundwater. • See SOP HS-009

General Hazards **These Hazards Apply to All Site Activities**	**Control Measure**
Driving	• Employees must wear their safety belt while in a moving vehicle. • Vehicle accidents will be reported in accordance with GEI's accident reporting procedures. • Vehicles will be properly maintained and safely operated (refer to GEI's Fleet Maintenance Program). • Employees will follow safe driving behaviors, which include limiting distractions such as manipulating radios or other equipment that may cause a distraction. Employees should not exceed the posted speed limit and should maintain a safe distance between other vehicles. • Use defensive driving techniques. • Driving distance and time after a 12-hour shift should not exceed 30 miles or 30 minutes (whichever is greater). • See SOP HS-004
Dusty Conditions Eye and respiratory irritation	• Avoid travel at extreme times. • Wear protective gear – dust masks, safety glasses
Heat stress Fainting, Fatigue, Heat Stroke	• Increase water intake while working. • Increase number of rest breaks and/or rotate workers in shorter work shifts. Rest in cool, dry areas. • Watch for signs and symptoms of heat exhaustion and fatigue. • Plan work for early morning or evening during hot months. • Use ice vests when necessary. • In the event of heat stroke, bring the victim to a cool environment and initiate first aid procedures. • See Appendix C of the HASP
Cold Stress Hypothermia, Frostbite	• Take breaks in heated shelters when working in extremely cold temperatures. • Drink warm liquids to reduce the susceptibility to cold stress.

General Hazards These Hazards Apply to All Site Activities	**Control Measure**
	• Wear protective clothing (recommended three layers: an outside layer to break the wind, a middle layer to provide insulation, and an inner layer of cotton or synthetic weave to allow ventilation). • Wear a hat and insulated boots. • Keep a change of dry clothing available in case clothes become wet. • Do heavy work during the warmer parts of the day and take breaks from the cold. • If possible, shield work areas from drafts of wind and use insulating material on equipment handles when temperatures are below 30°F. • Watch for symptoms of cold stress. See Appendix C in HASP
Inclement Weather	• Listen to local forecasts for warnings about specific weather hazards such as tornados, thunderstorms, and flash floods. • If the storms produce thunder and/or lightning, leave the work area immediately and move to a safe area. • Discuss an action plan prior to the severe weather. • Wear appropriate PPE for the type of weather that could be encountered. • Stop work until conditions are suitable. Take cover in vehicles or shelter as appropriate. • See SOP HS-010
Insects Bites, Stings, Allergic Reactions	• Apply insect repellent prior to performing field work and as often as needed throughout the work shift. • Wear proper protective clothing (work boots, socks and light-colored clothing) • Wear shoes, long pants with bottoms tucked into boots or socks, and a long-sleeved shirt when outdoors for long periods of time, or when many insects are most active (between dawn and dusk). • When walking in wooded areas, avoid contact with bushes, tall grass, or brush as much as possible.

General Hazards **These Hazards Apply to All Site Activities**	**Control Measure**
	• Field personnel who may have insect allergies should have bee sting allergy medication on site and should provide this information to the SSO and the CHSO prior to commencing work. • Field personnel should perform a self-check at the end of the day for ticks. • See SOP HS-001
Physical Injury Slips, Trips and Falls	• Wear PPE that properly fits, is in good condition and appropriate for the activities and hazards. • Maintain good visibility of the work area. • Avoid walking on uneven, steeply sloped or debris ridden ground surfaces. • Plan tasks prior to preforming them including an activity hazard analysis. • Keep trafficked areas free from slip/trip/fall hazards. • Maintain weed growth in sampling areas, especially on slopes. • Wear shoes with traction. • Avoid traversing steep areas in slippery conditions. • Do not carry heavy objects to sampling areas, on steeply sloped areas, or where steep areas must be traversed to arrive at sample points.
Poisonous Plants Poison Ivy, Poison Oak, and Poison Sumac	• Avoid areas infested with poisonous plants. • Use a barrier cream to provide some protection. • Wash exposed clothing separately in hot water with detergent. • After use, clean tools, and soles of boots with rubbing alcohol or soap and lots of water. • Immediately wash with soap and water any areas that come into contact with poisonous plants. • If exposed to a poisonous plant, wash with soap and water or a product such as TechnuTM. First aid kits are available in the company vehicles. • See SOP HS-001
Utilities Shock, Electrocution, Fire, Explosion	• A thorough underground utility survey must be conducted prior to intrusive

General Hazards **These Hazards Apply to All Site Activities**	**Control Measure**
	activities. Coordination with utility locating services, property owner(s) or utility companies must be conducted. • Utilities are to be considered live or active until documented otherwise. • For overhead utilities within 50 feet, determine with the utility company the appropriate distance. Minimum distance for clearance is based on voltage of the line. • If exposing a utility, proper support and protection must be provided so that the utility will not be damaged. • If a gas line is contacted, the contractor must notify police, fire, and emergency personnel, and evacuate employees according to the site evacuation procedures. No attempt should be made to tamper with or correct the damaged utility. • See SOP HS-014
Vehicular Traffic Struck by injury, crushing	• Increase visibility of the work area to others by using cones, flags, barricades, proper lighting, and caution tape to define work area. • Use a "spotter" to locate oncoming vehicles. • Use vehicle to block work area. • Engage police detail for all work conducted in appropriate areas. • Wear high-visibility, reflective vest at all times. • Maintain minimum United States Department of Transportation (DOT) defined distances to other traffic lanes. • See SOP HS-016

Activity	Potential Hazard	Control Measures
Carrying Equipment	Heavy lifting, strains/sprains, slips/trips/falls, pinch points	• Use proper lifting techniques as defined in the heavy lifting activity analysis below. • Wear the proper type of glove to protect hands against sharp edges and skin/soft tissue injuries.

Activity	Potential Hazard	Control Measures
		• Wear appropriate footwear. • Be aware of hard to grip and hold items that may force your hand or wrist into awkward, stressful positions and cause disorders like tendinitis or carpal tunnel syndrome. • Take breaks when carrying items frequently and/or for long distances. • Do not overreach when picking up or placing items. • Use the buddy system when necessary. • When climbing ladders, maintain three points of contact at all times. DO NOT carry equipment up or down ladders unless it is in a secure backpack or similar hands-free shoulder-strap bag or case. Lower or raise larger equipment by crane or rope.
Construction Equipment	Struck-by, caught-in between equipment, crushing, pinch points	• Wear hardhat; high visibility reflective safety vest; steel-toed, steel-shank boots or (electrical hazard) EH-rated safety boots with composite toe and shank; safety glasses; nitrile/neoprene gloves; and earplugs. • Identify yourself and your work location to heavy equipment operators, so they may incorporate you into their operations. • Coordinate hand signals with operators. • Stay Alert! Pay attention to equipment backup alarms and swing radii.

Activity	Potential Hazard	Control Measures
		• Wear a high-visibility, reflective vest when working near equipment or motor vehicle traffic. • Position yourself in a safe location when filling out logs talking with the contractor. • Notify the contractor immediately if any problems arise. • Do not stand or sit under suspended loads or near any pressurized equipment lines. • Do not operate cellular telephones in the vicinity of heavy equipment operation. • See HS-018
Drum Handling	Contaminant Contact, Cuts or Abrasions, Heavy Lifting, Slips/Trips/Falls	• Wear proper PPE during sampling including nitrile gloves and safety glasses and face shield as appropriate. • Use proper dollies or drum moving tools. • Use applicable tools to open/close drum lids. • Do not handle drums with bulging sides. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Use proper lifting techniques. • Ask fellow worker for help. • Keep trafficked areas free from slip/trip/fall hazards. • See SOP HS-003
Excavation and Trenching Oversight	Crushing, entrapment, falls, fire/explosion	• Prior to excavating, determine utility locations and have locations marked by utility

Activity	Potential Hazard	Control Measures
		companies and the property owner. • Utilities shall be properly supported, and barriers should be erected around excavations in remote areas. • Backfill temporary excavations when work is completed. • Personnel must remain 2 feet from the face of the excavation. • Sides, slopes, and faces shall meet Occupational Safety and Health Administration (OSHA) requirements. • Excavation entry will be allowed only with proper sloping or shoring. • See SOP HS-006
Heavy Lifting	Back injury, knee injury	• Use proper lifting techniques. • Ask fellow worker for help. • Use a mechanical lifting device or a lifting aid where appropriate. • If you must lift, plan the lift before doing it. • Check your route for clearance. • Bend at the knees and use leg muscles when lifting. • Use the buddy system when lifting heavy or awkward objects. • Do not twist your body while lifting. See SOP HS-025
Heavy Equipment / Drill Rig Working Near	Struck-by, caught-in- between equipment, crushing, pinch points	• Wear hardhat; high visibility reflective safety vest; steel-toed, steel-shank boots or (electrical hazard) EH-rated safety boots with composite toe and

Activity	Potential Hazard	Control Measures
		shank; safety glasses; nitrile/neoprene gloves; and earplugs. • Identify yourself and your work location to heavy equipment operators, so they may incorporate you into their operations. • Coordinate hand signals with operators. • Stay Alert! Pay attention to equipment backup alarms and swing radii. • Wear a high-visibility, reflective vest when working near equipment or motor vehicle traffic. • Position yourself in a safe location when filling out logs talking with the contractor. • Notify the contractor immediately if any problems arise. • Do not stand or sit under suspended loads or near any pressurized equipment lines. • Do not operate cellular telephones in the vicinity of heavy equipment operation. • See SOP HS-018
Groundwater Sampling/Soil Vapor Sampling	Contaminant Exposure, Cuts/Scrapes, Heavy Lifting, Repetition, Slips/Trips/Falls	• Wear hardhat; high visibility reflective safety vest; steel-toed, steel-shank boots or composite toe and shank; safety glasses; Nitrile/neoprene gloves; and earplugs as necessary. • Dispose of gloves after use and wash hands. • Wear work gloves over nitrile gloves. • Excavation entry will be allowed only with proper sloping or shoring.

Activity	Potential Hazard	Control Measures
		• Take regular breaks and do not work in unusual positions for long periods of time. • Keep trafficked areas free from slip/trip/fall hazards.

PPE is the initial level of protection based on the activity hazards and Site conditions which have been identified. Upgrades to respiratory protection may be required based on the designated Action Levels found in Section 9. General on-Site provisions will include extra nitrile, leather, and/or Kevlar gloves, extra protective coveralls (e.g. Tyvek®) with boot covers, drinking water and electrolyte fluids, reflective vest, first aid kit, fire extinguisher, hearing protection, and washing facilities.

If Site conditions suggest the existence of a situation more hazardous than anticipated, the Site personnel will evacuate the immediate area. The hazard, the level of precautions, and the PPE will then be reevaluated with the assistance and approval of the Corporate Health and Safety Officer (CHSO) and the PM.

4.3 Personal Safety

Field activities have the potential to take employees into areas which may pose a risk to personal safety. The following websites (sources) have been researched to identify potential crime activity in the area of the project:

- www.crimereports.com: Departments in this area are not currently sharing data through CrimeReports.
- www.cityrating.com/crimestatistics.asp: Crime in New York City is higher than the New York State and national averages.
- www.crimemapping.com: No data provided for the past 30 days within a mile of the Site.

To protect yourself, take the following precautions:

- If deemed necessary by the PM, use the buddy system (teams of a minimum of two persons present).
- Let the Site Safety Officer (SSO) know when you begin work in these areas and when you leave.
- Call in regularly.

- Pay attention to what is going on around you.
- If you arrive in an area and it does not look safe to get out of your vehicle, lock the doors and drive off quickly but safely.

Employees must not knowingly enter into a situation where there is the potential for physical and violent behaviors to occur. If employees encounter hostile individuals or a confrontation develops in the work area, suspend work activities, immediately leave the area of concern, and contact local 911 for assistance. Notify the SSO and Safety Team (Corporate Health and Safety Officer and Regional Health and Safety Officers – SafetyTeam@geiconsultants.com) of any incidents once you are out of potential danger.

In the event of an emergency, prompt communications with local emergency responders is essential. At least one charged and otherwise functioning cell phone to facilitate emergency communications will be on-site. Confirmation of cellular phone operation will be confirmed at the start of each working day.

4.3.1 Handling Drums and Containers

Regulations for handling drums and containers are specified by OSHA 29 Code of Federal Regulations (CFR) 1910.120(j). Potential hazards associated with handling drums include vapor generation, fire, explosions, and possible physical injury. Handling of drums/containers during the Site investigation and remediation activities may be necessary. If drum/container handling is necessary, it will be performed in accordance with applicable regulations.

4.3.1.1 Utilities

The Site may have shallow, buried utilities and also overhead utilities in certain areas. It will be necessary for parties disturbing the existing ground surface and conducting operations with heavy equipment having high clearances to exercise caution in performing project- related work with respect to the presence of utilities. Utility companies with active, buried lines in the Site area will be asked by the Contractor performing intrusive activities to mark their facilities. Employees will use these data to choose work locations.

4.3.1.2 Underground Utilities

No excavating, drilling, boring, or other intrusive activities will be performed until an underground utility survey, conducted by knowledgeable persons or agencies, has been made. This survey will identify underground and in-workplace utilities such as the following:

- Electrical lines and appliances.

- Telephone lines.
- Cable television lines.
- Gas lines.
- Pipelines.
- Steam lines.
- Water lines.
- Sewer lines.
- Pressurized air lines.

The location of utilities will be discussed with GEI employees and subcontractors during a Site Safety Briefing. Identified utilities should be marked or access otherwise restricted to avoid chance of accidental contact.

Even when a utility search has been completed, drilling, boring, and excavation should commence with caution until advanced beyond the depth at which such utilities are usually located. Utilities will be considered "live" or active until reliable sources demonstrate otherwise.

4.3.1.3 Heat Stress

Employees may be exposed to the hazards associated with heat stress when ambient temperatures exceed 70ºF. Employees should increase water intake while working in conditions of high heat. Enough water should be available so that each employee can consume 1 quart of water per hour. In addition, they should increase number of rest breaks and/or rotate employees in shorter work shifts. Employees should rest in cool, dry, shaded areas for at least 5 minutes. Employees should not wait until they feel sick to cool down. Watch for signs and symptoms of heat exhaustion and fatigue. In the event of heat stroke, bring the victim to a cool environment, call for help, and initiate first aid procedures.

The procedures to be followed regarding avoiding heat stress are provided in Appendix C – Heat Stress Guidelines and in GEI's Heat Stress program.

4.3.2 Cold Stress

Employees may be exposed to the hazards of working in cold environments. Potential hazards in cold environments include frostbite, trench foot or immersion foot, hypothermia, as well as slippery surfaces, brittle equipment, and poor judgment. The procedures to be followed regarding avoiding cold stress are provided in Appendix C – Cold Stress Guidelines and in GEI's Cold Stress program.

4.3.3 Noise

Noise is a potential hazard associated with the operation of heavy equipment, power tools, pumps, and generators. Employees who will perform suspected or established high noise tasks and operations will wear hearing protection. If deemed necessary by the SSO, the CHSO will be consulted on the need for additional hearing protection and the need to monitor sound levels for Site activities. Other employees who do not need to be in proximity of the noise should distance themselves from the equipment generating the noise.

4.3.4 Hand and Power Tools

In order to complete the various tasks for the project, personnel may use hand and power tools. The use of hand and power tools can present a variety of hazards, including physical harm from being struck by flying objects, being cut or struck by the tool, fire, and electrocution. Work gloves, safety glasses, and hard hats will be worn by the operating personnel when using hand and power tools and Ground Fault Circuit Interrupter (GFCI)- equipped circuits will be used for power tools.

4.3.5 Manual Lifting

Manual lifting of objects and equipment may be required. Failure to follow proper lifting technique can result in back injuries and strains. Employees should use a buddy system and/or power equipment to lift heavy loads whenever possible and should evaluate loads before trying to lift them (i.e., they should be able to easily tip the load and then return it to its original position). Carrying heavy loads with a buddy and proper lifting techniques include: 1) make sure footing is solid; 2) make back straight with no curving or slouching; 3) center body over feet; 4) grasp the object firmly and as close to your body as possible; 5) lift with legs; and 6) turn with your feet, do not twist.

4.3.6 Cuts and Lacerations

The core sampling program may require employees to use powered cutting tools (circular saw or shears) or a hooked knife to cut open the sample liner. Safety box cutters will be utilized for routine operations such as opening boxes of supplies or cutting rope or string. When using cutting tools, follow the safety precautions listed below:

- Keep free hand out of the way.
- Secure work if cutting through thick material.
- Use only sharp blades; dull blades require more force that results in less knife control.

- Pull the knife through the object and away from your body; pulling motions are easier to manage.
- Do not put the knife in your pocket.
- Wear leather or Kevlar® gloves when using knives or blades, or when removing sharp objects caught or dangling in sampling gear.

4.4 Chemical Hazards

The characteristics of compounds at the Site are discussed below for information purposes. Adherence to the safety and health guidelines in this CHASP should reduce the potential for exposure to the compounds discussed below.

Heavy Metals

Exposure to high concentrations of arsenic can cause dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, and hyper pigmentation of skin. Chronic exposure to arsenic has resulted in lung cancer in humans.

Exposure to high concentrations of aluminum can cause irritation of the eyes, skin, and the respiratory system.

Exposure to high concentrations of antimony can cause irritation of eyes, skin, nose, throat, and mouth; coughing; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; and could be unable to smell properly. Chronic exposure to antimony can produce respiratory effects that include antimony pneumoconiosis (inflammation of the lungs due to irritation caused by the inhalation of dust), alterations in pulmonary function, chronic bronchitis, chronic emphysema, inactive tuberculosis, pleural adhesions, irritation; cardiovascular effects (increased blood pressure, altered EKG readings and heart muscle damage) and gastrointestinal disorders in humans.

Exposure to high concentrations of beryllium can result in “beryllium sensitization” which is an allergic response to beryllium. Symptoms of the disease include cough, shortness of breath, fatigue, fevers, skin rash, and night sweats. In the later stages, lung tissue becomes scarred. In severe cases, the right side of the heart may be strained due to increased pressure in the pulmonary artery from lung damage.

Exposure to high concentrations of cadmium can cause acute symptoms such as pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness and pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; loss of the sense of smell), mild anemia; and is considered a potential occupational carcinogen.

Exposure to chromium can cause acute symptoms such as irritation of the eyes, nose and throat as well as wheezing and coughing. Chronic effects include nosebleeds, nasal congestion, dermatitis, and loss of sight.

Exposure to high concentrations of copper through inhalation can cause irritation of the eyes, nose, pharynx, nasal septum. Ingestion may cause a metallic taste. Skin irritation may result from direct contact with skin. Damage to the liver and kidneys may occur.

No adverse health effects are associated with environmental exposure to iron. Target organs for iron via ingestion of iron (most often in supplement form) are the liver, cardiovascular system, and kidneys. Exposure to high concentrations of iron through ingestion can cause salivation nausea, vomiting, diarrhea, and abdominal pain.

Exposure to lead may cause acute symptoms such as eye irritation, weakness, weight loss, abdominal pain, and anemia. Chronic exposure to lead may result in kidney disease, effects to the reproductive system, blood forming organs, and Central Nervous System (CNS).

Lead and arsenic are regulated by specific OSHA standards. They are 29 CFR 1910.1025/1926.52 and 29 CFR 1910.1018/1926.1118, respectively. These standards include specific requirements for air monitoring, signs and labels, training and medical surveillance.

Exposure to high concentrations of manganese can cause manganism, metal fume fever, flu- like fever, and kidney damage.

Exposure to high concentrations of nickel may cause sensitization dermatitis, allergic asthma, and pneumonitis. Exposure to mercury can cause dizziness, salivation nausea, vomiting, diarrhea, constipation, emotional disturbance, and kidney injury. Chronic exposure to mercury can cause CNS damage.

Exposure to high concentrations of selenium can cause mucous membrane irritation, coughing, sneezing, shortness of breath, chills, headaches, hypotension, and CNS depression. Chronic exposure to selenium could cause bronchial irritation, gastrointestinal distress, excessive fatigue, and skin discoloration.

Exposure to high concentrations of thallium can cause nausea, diarrhea, abdominal pain, vomiting; tremor; chest pain, pulmonary edema; convulsions, psychosis; liver, kidney damage; and alopecia.

Vanadium may cause greenish-black discoloration of the tongue and is possibly carcinogenic to humans. Long-term or repeated exposure to vanadium may have effects on the respiratory tract, resulting in chronic rhinitis and chronic bronchitis.

Exposure to high concentrations of zinc through ingestion can cause abdominal pain, nausea, vomiting, and diarrhea. Chronic exposure can lead to low blood pressure, jaundice, and seizures.

These metals are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. As with semi-volatile organic compounds (SVOCs), the primary route of exposure is through inhalation of dust particles when soil is disturbed and becomes airborne.

Pesticides

Pesticide exposures, in general, affect the CNS, liver, kidneys, and skin. At high concentrations, pesticides can cause headache, dizziness, nausea, vomiting, malaise (vague feeling of discomfort), sweating, limb jerks, convulsions, and coma. The pesticides detected at the Site are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur.

Polycyclic Aromatic Hydrocarbons (PAHs)

PAHs are a group of chemicals consisting of numerous carbon atoms joined together to form multiple rings. Most are formed from the incomplete combustion of plant or animal matter, or carbon fuels, such as coal or petroleum. These compounds are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. PAHs may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching, burning, swelling, and redness. Direct contact or exposure to the vapors may be irritating to the eyes. Conjunctivitis may result from prolonged exposure. High levels of exposure to PAHs, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever, anemia, liver damage, vomiting, convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of entry for the work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil and water samples. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne.

Polychlorinated Biphenyls (PCBs)

PCBs have historically been used from a number of sources including, but not limited to; electrical systems, hydraulic oils, lubricants, cutting oils, printer’s ink, and asphalt. Exposure to PCBs can occur through unbroken skin without immediate pain or irritation. PCBs detected at the site are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. Acute effects of exposure to high concentrations of PCB can include eye, skin, nose, and throat irritation. Chronic effects of PCB exposure can include skin swelling and redness, gastro-intestinal disturbances, and neurological effects such as headache, dizziness, nervousness, and numbness of extremities. PCBs are suspected human carcinogens that can cause liver cancer. PCBs can accumulate in fatty tissues and result in health effects after the initial exposure has occurred. The primary route of exposure for PCBs is inhalation, dermal contact, and ingestion. Analysis of soils from the Site did not indicate elevated PCB concentrations.

Semivolatile Organic Compounds

SVOCs usually consist of a mixture of acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benzo(b)fluoranthene, benzo(k)fluorethene, benz(a)pyrene, benzo(e)pyrene, benzo(g,h,i)peryline, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3cd)pyrene, 2-methyl naphthalene, naphththalene, phenanthrene, phenols, and pyrene.

These SVOCs are present at the Site within impacted soil and groundwater. These compounds are at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. SVOCs such as those listed above may cause contact dermatitis. Direct contact can be irritating to the skin and produce itching, burning, swelling, and redness. Direct contact or exposure to the vapors may be irritating to the eyes.

Conjunctivitis may result from prolonged exposure. Many SVOCs are considered to be very toxic, if ingested. High levels of exposure to SVOCs, though not anticipated during work activities conducted during this project, may increase the risk of cancer including lung, kidney, and skin cancer. Naphthalene is also an eye and skin irritant and can cause nausea, headache, fever, anemia, liver damage, vomiting, convulsions, and coma. Poisoning may occur by ingestion of large doses, inhalation, or skin absorption.

The major route of entry for the work activities to be conducted at this Site is through direct contact. Exposure is most likely when handling soil and water samples. Inhalation may occur when the soil is disturbed causing respirable and nuisance dust particles to become airborne.

Volatile Organic Compounds

Petroleum Hydrocarbons

VOCs, such as benzene, toluene, ethyl benzene, and xylene (BTEX) are present as soil and groundwater contaminants. These compounds are detected at the Site at environmental concentrations and are not expected to be at concentrations that exposure symptoms would occur. These compounds generally have a depressant effect on the CNS, may cause chronic liver and kidney damage, and some are suspected human carcinogens. Benzene is a known human carcinogen. Acute exposure may include headache, dizziness, nausea, and skin and eye irritation. The primary route of exposure to VOCs is through inhalation and therefore respiratory protection is the primary control against exposure to VOCs.

Chlorinated Hydrocarbons

Chlorinated hydrocarbons (organochlorides) are a very large and diverse group of hydrocarbon molecules that also have at least one covalently bound chlorine atom chemically bonded to them. Chlorinated hydrocarbons are used predominantly as solvents and have historically been used as industrial degreasers, dry cleaning solvents, anesthetic agents, and as refrigerants. They are colorless, volatile liquids with a moderately sweet aroma and partially soluble in, but denser than water. They are the most common DNAPL.

The more common forms of chlorinated solvent contamination of soils and groundwaters include:

- Tetrachloroethene (PCE, Tetrachloroethylene).
- Carbon tetrachloride (Tetrachloromethane or carbon tet).
- Trichloroethylene (TCE,Trichloroethene).
- 1,1,1-TrichloroMethane (Chloroform).
- 1,1,1-Trichloroethane (TCA, methyl chloroform, chlorothene, Solvent 111).
- Dichloromethane (DCM or methylene chloride).

As a class, the chlorinated hydrocarbons are potent CNS depressants or stimulants. They also cause greater liver and kidney damage compared to other organic solvents. Many have been shown to cause cancer in laboratory animals; due to widespread industrial use, the issue of carcinogenic risk to humans is one of the most controversial issues in regulatory toxicology. Exposure to chlorinated hydrocarbon compounds in the occupational setting is primarily through inhalation. Skin absorption is variable and usually insignificant, although dermal absorption following prolonged or extensive skin contact can cause systemic toxicity.

4.4.1 Evaluation of Organic Vapor Exposure

Air monitoring reduces the risk of overexposure by indicating when action levels have been exceeded and when PPE must be upgraded or changed. Action Levels for VOCs and associated contingency plans for the work zone are discussed within Section 9 of this CHASP.

Exposure to organic vapors will be evaluated and/or controlled by:

- Monitoring air concentrations for organic vapors in the breathing zone with a PID.
- When possible, engineering control measures will be utilized to suppress the volatile organic vapors. Engineering methods can include utilizing a fan to promote air circulation, utilizing volatile suppressant foam, providing artificial ground cover, or covering up the impacted material with a tarp to mitigate volatile odors.
- When volatile suppression engineering controls are not effective and organic vapor meters indicate concentrations above the action levels, then appropriate respiratory protection (i.e., air purifying respirator with organic vapor cartridge) will be employed.

4.4.2 Evaluation of Skin Contact and Absorption

Skin contact by contaminants may be controlled by use of proper hygiene practices, PPE, and good housekeeping procedures. The proper PPE (e.g., Tyvek®, gloves, safety glasses) as described in Section 5 will be worn for activities where contact with potential contaminated media or materials are expected.

SDSs for decontamination chemicals and laboratory reagents that may be used on-Site are included in Appendix B. Specific chemical hazards information from the occupational health sources are summarized in Table 3.

Table 3. Chemical Data

Compound	CAS #	ACGIH TLV	OSHA PEL	Route of Exposure	Symptoms of Exposure	Target Organs	Physical Data
Aluminum	7429-90-5	NIOSH REL: TWA 10 mg/m^3 (total) TWA 5 mg/m^3 (resp)	TWA 15 mg/m^3 (total) TWA 5 mg/m^3 (resp)	Inhalation, skin and/or eye contact	Irritation eyes, skin, respiratory system	Eyes, skin, respiratory system	Silvery-white, malleable, ductile, odorless metal. FP: none LEL:N/A UEL: N/A VP: 0 mm
Antimony	7440-36-0	TWA 0.5 mg/m^3	TWA 0.5 mg/m^3	Inhalation, Ingestion, Skin Contact, Eyes	Irritation eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea, vomiting, diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly	Respiratory system, skin, eyes, cardiovascular systems	Silver-white, lustrous, hard, brittle solid; scale- like crystals; or a dark- gray, lustrous powder. FP: NA IP: NA LEL: NA UEL NA VP: 0 mm
Arsenic	7440-38-2	0.01 mg/ m^3	0.01 mg/m^3 A.L. .005 mg/m^3	Inhalation, Skin Absorption, Ingestion, Skin Contact	Ulceration of nasal septum, dermatitis, GI disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin, potential carcinogen	Liver, kidneys, skin, lungs, lymphatic system	Metal: Silver-gray or tin- white, brittle, odorless solid FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Barium	7727-43-7	TWA 10 mg/m^3 (total) TWA	TWA 15 mg/m^3 (total) TWA	Inhalation, skin and/or eye contact	Irritation eyes, nose, upper respiratorysystem; benign	Eyes, respiratory system	Metal: White or yellowish, odorless powder

		5 mg/m^3 (resp)	5 mg/m^3 (resp)		pneumoconiosis (baritosis)		FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Benzene	71-43-2	0.5 ppm (Skin)	1 ppm TWA 5 ppm STEL	Inhalation Skin Absorption Ingestion Skin Contact	Irritation of eyes, skin, nose, respiratory system, giddiness, headache, nausea; staggering gait, fatigue, anorexia, weakness, dermatitis, bone marrow depression, potential carcinogen	Eyes, skin, CNS, bone marrow, blood	FP: 12° F IP: 9.24 eve LEL: 1.2% UEL:7.8% VP: 75 mm
Beryllium	7440-41-7	NIOSH REL: Ca C 0.0005 mg/m^3	TWA 0.002 mg/m^3 C 0.005 mg/m^3 (30 minutes) with a maximum peak of 0.025 mg/m^3	Inhalation, skin and/or eye contact	Berylliosis (chronic exposure): anorexia, weight loss, lassitude (weakness, exhaustion), chest pain, cough, clubbing of fingers, cyanosis, pulmonary insufficiency; irritation eyes; dermatitis; [potential occupational carcinogen]	Eyes, skin, respiratory system	A hard, brittle, gray-white solid. FP: none LEL:N/A UEL: N/A VP: 0 mm
Cadmium	7440-43-9 (metal)	CA	TWA 0.005 mg/m^3	Inhalation, ingestion	Pulmonary edema, dyspnea (breathing difficulty), cough, chest tightness, substernal	Respiratory system, kidneys, prostate,	Silver-white, blue-tinged lustrous, odorless solid. FP: NA IP: NA LEL: NA UEL: NA

					(occurring beneath the sternum) pain; headache; chills, muscle aches; nausea, vomiting, diarrhea; anosmia (loss of the sense of smell), emphysema, proteinuria, mild anemia; [potential occupational carcinogen]	blood; **Cancer Site** [prostatic & lung cancer]	VP: 0 mm
Carbon Tetrachloride	56-23-5	Ca ST 2 ppm (12.6 mg/m^3) [60-minute]	Ca ST 2 ppm (12.6 mg/m^3) [60-minute]	Inhalation, skin absorption, ingestion, skin and/or eye contact	Irritation eyes, skin; CNS depression; nausea, vomiting; liver, kidney injury; drowsiness, dizziness, incoordination; [potential occupational carcinogen]	CNS, eyes, lungs, liver, kidneys, skin	Colorless liquid with a characteristic ether-like odor FP: NA IP: 11.47 eV LEL: NA UEL: NA VP: 91 mmHg
Ethylbenzene	100-41-4	100 ppm	100 ppm	Inhalation Ingestion Skin Contact	Eye, skin, mucous membrane irritation; headache; dermatitis, narcosis; coma	Eyes, skin, respiratory system, CNS	FP: 55° F IP: 8.76 eV LEL: 0.8% UEL:6.7% VP: 7 mm
Iron	1309-37-1	Iron oxide dust and fume (Fe2O3) as Fe: 5 mg/m^3 (TWA);	Iron oxide dust and fume: 10 mg/m^3	Inhalation, ingestion, eye contact	Respiratory tract irritation, coughing, shortness of breath, overdose of iron may cause vomiting, abdominal pain,	Eyes, respiratory system, GI tract, liver	Reddish brown solid FP: NA LEL: NA UEL: NA VP: 0 mmHg

					bloody diarrhea, vomiting blood, lethargy, and shock; acidity in the blood, bluish skin discoloration, fever, liver damage, and possibly death; eye and cornea irritation and discoloration		
Lead	7439-92-1	0.050 mg/ m^3	0.05 mg/m^3 A.L. 0.03 mg/m^3	Inhalation Ingestion Skin Contact	Weakness, insomnia; facial pallor; pal eye, anorexia, weight loss, malnutrition; constipation, abdominal pain, colic; anemia; gingival lead line; tremor; paralysis of wrist and ankles; irritates eyes, hypo tension	Eyes, GI tract, CNS, kidneys, blood, gingival tissue	A heavy, ductile, soft, gray solid. FP: NA IP: NA LEL: NA UEL: NA VP: 0 mm
Manganese	7439-96-5	TWA 1 mg/m^3 ST 3 mg/m^3	C 5 mg/m^3	Inhalation, ingestion	Manganism; asthenia, insomnia, mental confusion; metal fume fever: dry throat, cough, chest tightness, dyspnea (breathing difficulty), rales, flu-like fever; low-back pain; vomiting; malaise (vague feeling of	Respiratory system, CNS, blood, kidneys	A lustrous, brittle, silvery solid. FP: NA LEL: NA UEL: Na VP: 0 mmHg

					discomfort); lassitude (weakness, exhaustion); kidney damage		
Mercury	7439-97-6	0.025 mg/m^3	0.10 mg/m^3	Inhalation Ingestion Skin Contact Skin Absorption	Irritates eyes and skin, chest pain, cough, difficulty breathing, bronchitis, pneumonitis, tremor, insomnia, irritability, indecision, headache, fatigue, weakness, stomatitis, salivation, Gastrointestinal disturbance, weight loss, proteinuria	Eyes, skin, respiratory tract, CNS	Silver-white, heavy odorless liquid FP: NA IP:? LEL: NA UEL:NA VP: 0.0012 mm
PCBs	11097-69-1	0.5 mg/m^3 (Skin)	0.5 mg/m^3 (Skin)	Inhalation Skin Absorption Ingestion Skin Contact	Irritate eyes; chloracne; liver damage;	Skin, eyes, liver, reproductive system	Colorless liquid or solid with a mild, hydro-carbon odor VP = 0.00006 mm
PCE	127-18-4	25 ppm	100 ppm TWA 200 ppm C 300 ppm (5 minutes in any 3 hours)	Inhalation, Ingestion, Skin Contact	Irritation, nausea, vomiting, chest pain, difficulty breathing, headache, drowsiness, dizziness, disorientation, loss of coordination, blurred vision, loss	Eyes, skin, respiratory system, liver, CNS	A colorless, sweet smelling volatile liquid. FP: NA IP: 9.32 eV LEL: NA UEL: NA VP: 14 mmHg

					of appetite, stomach pain, pain in extremities		
TCA	71-55-6	NA	350 TWA	Inhalation Ingestion Skin Contact	Irritation of eyes, nausea, vomiting, dizziness, drowsiness, blurred vision, headache	Respiratory system, CNS, liver, mucous membranes	Colorless liquid FP: NA? IP: 11 eV LEL: 7.5% UEL: 12.5% VP: 100 mmHg
TCE	79-01-6	200 ppm	100 ppm TWA 200 ppm C 300 ppm (5 minutes in any 3 hours)	Inhalation, Ingestion, Skin Contact	Irritation to eyes, skin, dizziness, fatigue, blurred vision, tremors, nausea, vomiting, drowsiness, headache	Kidneys, CNS, liver, heart, upper respiratory	Colorless liquid with chloroform odor FP: NA IP: 9.45 eV LEL: 8% UEL: 10.5% VP: 58 mmHg
Toluene	108-88-3	50 ppm	200 ppm	Inhalation Skin Absorption Ingestion Skin Contact	Eye, nose irritation; fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, tearing of eyes; nervousness, muscle fatigue, insomnia, tingling in limbs; dermatitis	Eyes, skin, respiratory system, CNS, liver, kidneys	FP: 40o F IP: 8.82 eV LEL: 1.1% UEL:7.1% VP: 21 mm
1,1,1 Trichloroethan e	71-55-6	C 350 ppm (1900 mg/ m^{3}) [15-minute]	350 TWA (1900 mg/m^{3})	Inhalation Ingestion Skin Contact	Irritation of eyes, nausea, vomiting, dizziness, drowsiness, blurred vision, headache	Respiratory system, CNS, liver, mucous membranes	Colorless liquid FP: NA? IP: 11 eV LEL: 7.5% UEL: 12.5% VP: 100 mmHg
1,2,4-Trimethyl- benzen e	95-63-6	NIOSH REL TWA 25 ppm	None	Inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic	Eyes, skin, respiratory system, CNS, blood	FP: 112°F BP: 337°F LEL: 0.9% UEL: 6.4% VP: 1 mmHg

					anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)		
1,3,5 – Trimethylbenzene	108-67-8	TWA 25 ppm (125 mg/ m^3)	NA	inhalation, ingestion, skin and/or eye contact	irritation eyes, skin, nose, throat, respiratory system; bronchitis; hypochromic anemia; headache, drowsiness, lassitude (weakness, exhaustion), dizziness, nausea, incoordination; vomiting, confusion; chemical pneumonitis (aspiration liquid)	Eyes, skin, respiratory system, CNS, blood	Class II Flammable Liquid FP: 122°F LEL: NA VP: 2mmHg IP: 8.39 eV UEL: NA
VOCs1	NA	0.5 ppm (Skin)	0.5 ppm TWA 2.5 ppm STEL	Inhalation, Skin Absorption, Ingestion, Skin Contact	Irritate eyes and skin; headaches; dizziness; nausea; kidney; liver damage; depress CNS	Skin, eyes, liver, kidney, CNS	Colorless volatile liquid, sometimes with a sweet or solvent odor

Xylene	1330-20-7	100 ppm	100 ppm	Inhalation Skin Absorption Ingestion, Skin Contact	Eye, skin, nose, throat irritation; dizziness, excitement, drowsiness; incoordination, staggering gait; corneal damage; appetite loss, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, CNS, GI tract, blood, liver, kidneys	FP: 90o F LEL: 0.9% UEL: 6.7% VP: 9 mm
Zinc	1314-13-2	5 mg/m^3 (TWA), 10 mg/m^3 (STEL) for zinc oxide fume	10 mg/m^3 (TWA), for zinc oxide fume	Inhalation	Metal fume fever: chills, muscle ache, nausea, fever, dry throat, cough; lassitude (weakness, exhaustion); metallic taste; headache; blurred vision; low back pain; vomiting; malaise (vague feeling of discomfort); chest tightness; dyspnea (breathing difficulty), rales, decreased pulmonary function	Respiratory system	Colorless liquid FP: NA? IP: 11 eV LEL: 7.5% UEL: 12.5% VP: 100 mmHg

Abbreviations:

°F = degrees Fahrenheit
ACGIH = American Conference of Industrial Hygienists
A.L. = Action Level
atm = atmosphere
C = ceiling limit, not to be exceeded
CAS # = chemical abstract services number
CNS = Central Nervous System
CTPV = Coal Tar Pitch Volatiles
CVS = Cardiovascular System
eV = electron volt
f/cc = fibers per cubic centimeter
FP = Flash point
GI = Gastro-intestinal
H2S = Hydrogen Sulfide
HCN = Hydrogen Cyanide
hr = hour
IP = Ionization Potential
LEL = Lower explosive limit
mg/m^3 = micrograms per cubic meter
min = minute
mm = millimeter
mmHg = millimeters of mercury
N/A = not applicable
OSHA = Occupational Safety and Health Administration
PAH = Polycyclic Aromatic Hydrocarbons
PCB = Polychlorinated Biphenyls
PEL = Permissible exposure limit
ppm = parts per million
Skin = significant route of exposure
STEL = Short-term exposure limit (15 minutes)
TWA = Time-weighted average (8 hours)
VP = vapor pressure approximately 68°F in mm Hg

5. Personal Protective Equipment

The PPE specified in Table 4 represents PPE selection required by 29 CFR 1910.132 and is based on the Activity Hazard Analysis of Section 4 (Table 2). Specific information on the selection rationale activity can be found in the GEI Health and Safety Manual.

The PPE program addresses elements, such as PPE selection based on Site hazards, use and limitations, donning and doffing procedures, maintenance and storage, decontamination and disposal, training and proper fitting, inspection procedures prior to / during / and after use, evaluation of the effectiveness of the PPE program, and limitations during temperature extremes, heat stress, and other appropriate medical considerations. A summary of PPE for each level of protection is in Table 4.

Table 4. Site-Specific PPE

Task	PPE Level	Site-Specific Requirements	Respirator
Mobilization/Demobilization			
Reconnaissance	D	Hard hat, safety glasses, steel toe/shank safety boot, reflective vest, leather work gloves, hearing protection as needed	D - None
Mobilization/Demobilization of Equipment and Supplies	D	Hard hat, safety glasses, steel toe/shank safety boot, reflective vest, leather work gloves, hearing protection as needed	D – None
Establishment of Site Security, Work Zones, and Staging Area	D	Hard hat, safety glasses, steel toe/shank safety boot, reflective vest, leather work gloves, hearing protection as needed	D - None
Construction			
Drilling, Groundwater Well Installation, Excavation, Digging Test Pits, Backfilling, Grading Observation, Sampling	D	Hard hat, safety glasses, steel toe/shank safety boot with overboot as needed, reflective vest, leather work gloves as needed, nitrile gloves, hearing protection as needed, Tyvek as needed	Level D initially, Level C-If action levels exceeded (see Section 9 of CHASP)
Hazardous Materials Assessment			
Sampling Soil Vapor and Groundwater	D	Hard hat, safety glasses, steel toe/shank safety boot with overboot as needed, reflective vest, leather work gloves as needed, nitrile gloves, hearing protection as needed, Tyvek as needed	D – None
Demolition/Remediation Observations			
Observe Contractor Activities	D	Hard hat, safety glasses, steel toe/shank safety boot with overboot as needed, reflective vest, leather work gloves as	D - None

		needed, nitrile gloves, hearing protection as needed, Tyvek as needed	

Use of Level A or Level B PPE is not anticipated. If conditions indicating the need for Level A or Level B PPE are encountered, personnel will leave the Site and this CHASP will be revised with oversight of the CHSO or GEI personnel will not re-enter the Site until conditions allow.

For most work conducted at the site, Level D PPE will include long pants, hard hats, safety glasses with side shields, and steel toe/shank or EH-rated safety boots. When work is conducted in areas where non-aqueous phase liquid (NAPL) or tar-saturated soil is anticipated, employees will wear, at a minimum, modified Level D PPE, which can include Tyvek® coveralls and safety boots with overboots.

5.1 OSHA Requirements for PPE

Personal protective equipment used during the course of this field investigation must meet the following OSHA standards:

Table 5. OSHA Standards for PPE

Type of Protection	Regulation	Source
Eye and Face	29 CFR 1910.133	ANSI Z87.1 1968
Respiratory	29 CFR 1910.134	ANSI Z88.1 1980
Head	29 CFR 1910.135	ANSI Z89.1 1969
Foot	29 CFR 1910.136	ANSI Z41.1 1999 or ASTM F-2412-2005, and ASTM F-2413-2005

CFR = Code of Federal Regulations
ANSI = American National Standards Institute
ASTM = American Society For Testing and Materials

On-Site GEI personnel who have the potential to don a respirator must have a valid fit test certification and documentation of medical clearance. The CHSO will maintain such information on file for on-site personnel. The PM will obtain such information from the subcontractor's site supervisor prior to the initiation of such work. Both the respirator and cartridges specified for use in Level C protection must be fit-tested prior to use in accordance with OSHA regulations (29 CFR 1910.134). Air purifying respirators cannot be worn under the following conditions:

- Oxygen deficiency (less than 20.7%).
- Imminent Danger to Life and Health (IDLH) concentrations.
- If contaminant levels exceed designated use concentrations.

6. Key Project Personnel/Responsibilities and Lines of Authority

6.1 GEI Personnel

Nicholas Recchia	Project Manager
Leif Robertson	Proposed Site Safety Officer/Field Personnel
Steve Hawkins	Corporate Health and Safety Officer
Jessica Papageorge	Regional Health and Safety Officer

The implementation of health and safety at this project location will be the shared responsibility of the PM, the CHSO, Regional Health and Safety Officer (RHSO), the SSO, other GEI personnel implementing the proposed scope of work.

6.1.1 GEI Project Manager

The PM, Wendy Monterosso, is responsible for confirming that the requirements of this CHASP are implemented. Some of the PM's specific responsibilities include:

- Conducting and documenting the Project Safety Briefing for GEI project employees and forwarding the signed form (Appendix D) to the Safety Team.
- Verifying that the GEI staff selected to work on this program are sufficiently trained for Site activities.
- Assuring those personnel to whom this CHASP applies, including subcontractor personnel, have received a copy of it.
- Providing the CHSO with updated information regarding conditions at the Site and the scope of Site work.
- Providing adequate authority and resources to the on-site SSO to allow for the successful implementation of necessary safety procedures.
- Supporting the decisions made by the SSO and CHSO. Maintaining regular communications with the SSO and, if necessary, the CHSO.
- Verifying that the subcontractors selected by GEI to work on this program have completed GEI environmental, health and safety requirements and have been deemed acceptable for the proposed scope of work.

- Coordinating the activities of GEI subcontractors and confirming that they are aware of the pertinent health and safety requirements for this project.

6.1.2 GEI Corporate Health and Safety Officer

The CHSO is the individual responsible for the review, interpretation, and modification of this CHASP. Modifications to this CHASP which may result in less stringent precautions cannot be undertaken by the PM or the SSO without the approval of the CHSO. Specific duties of the CHSO include:

- Writing, approving, and amending the CHASP for this project.
- Advising the PM and SSO on matters relating to health and safety on this Site.
- Recommending appropriate PPE and safety equipment to protect personnel from potential Site hazards.
- Conducting accident investigations.
- Maintaining regular contact with the PM and SSO to evaluate Site conditions and new information which might require modifications to the CHASP.

6.1.3 GEI Site Safety Officer

GEI field staff are responsible for implementing the safety requirements specified in this CHASP. However, one person will serve as the SSO. The SSO will be on-site during all activities covered by this CHASP. The SSO is responsible for enforcing the requirements of this CHASP once work begins. The SSO has the authority to immediately correct situations where noncompliance with this CHASP is noted and to immediately stop work in cases where an immediate danger is perceived. Some of the SSO’s specific responsibilities include:

- Conducting/attending the Project Safety Briefing prior to beginning work, and subsequent safety meetings as necessary.
- Conduct daily Safety Tailgate meeting briefing for Site-related work.
- Verifying that personnel to whom this CHASP applies have attended and participated in the Project Safety Briefing and subsequent safety meetings that are conducted during the implementation of the program.
- Maintaining a high level of health and safety consciousness among employees implementing the proposed activities.
- Procuring the air monitoring instrumentation required and performing air monitoring for investigative activities.

- Procuring and distributing the PPE and safety equipment needed for this project for GEI employees.
- Verifying that PPE and health and safety equipment used by GEI is in good working order.
- Verifying that the selected contractors are prepared with the correct PPE and safety equipment and supplies.
- Notifying the PM of noncompliance situations and stopping work in the event that an immediate danger situation is perceived.
- Monitoring and controlling the safety performance of personnel within the established restricted areas to confirm that required safety and health procedures are being followed.
- Stopping work in the event that an immediate danger situation is perceived.
- Reporting accident/incident and preparing accident/incident reports, if necessary.

6.1.4 GEI Field Personnel

GEI field personnel covered by this CHASP are responsible for following the health and safety procedures specified in this CHASP and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:

- Reading and signing the CHASP in its entirety prior to the start of on-site work.
- Attending and actively participating in the required Project Safety Briefing prior to beginning on-Site work and any subsequent safety meetings that are conducted during the implementation of the program.
- Stopping work in the event that an immediate danger situation is perceived.
- Bringing forth any questions or concerns regarding the content of the CHASP to the PM or the SSO, prior to the start of work.
- Reporting accidents, injuries, and illnesses, regardless of their severity, to the SSO, CHSO, and HR.
- Complying with the requirements of this CHASP and the requests of the SSO.

6.1.5 Lines of Authority will be as follows:

On Site: GEI will have responsibility for safety of its employees during the work performed at the Site. GEI's field representative will have a cell phone available to contact the appropriate local authorities, in the event of an emergency. GEI's field representative will be available for communication with the GEI PM and with the Enclave at 241st Development representative.

GEI employees have the authority to stop work activities if an unanticipated hazard is encountered or a potential unsafe condition is observed. The GEI employee should contact the Corporate Health and Safety Officer and the Project Manager to discuss the stop work conditions and potential control methods that can be implemented.

6.2 Subcontractors

GEI has not yet selected subcontractors for the monitoring well installation work.

GEI requires its subcontractors to work in a responsible and safe manner. Subcontractors hired by GEI are required to submit documentation of their safety practices as part of GEI's Subcontractor Management Program for evaluation and approval before the start of work. Subcontractors for this project will be required to develop their own CHASP for protection of their employees, but, at a minimum, must adhere to applicable requirements set forth in this CHASP.

7. Training Program

7.1 HAZWOPER Training

In accordance with OSHA Standard 29 CFR 1910.120 "Hazardous Waste Operations and Emergency Response" (HAZWOPER) responders will, at the time of job assignment, have received a minimum of 40 hours of initial health and safety training for hazardous waste site operations. Personnel who have not met the requirements for initial training will not be allowed to work in any Site activities in which they may be exposed to hazards (chemical or physical). Proof of training will be submitted to the PM or his/her representative prior to the start of field activities.

7.2 Annual 8-Hour Refresher Training

Annual 8-hour refresher training will be required of hazardous waste site field personnel in order to maintain their qualifications for fieldwork. The training will cover a review of 29 CFR 1910.120 requirements and related company programs and procedures. Proof of current 8-hour refresher training will be submitted to the PM or his/her representative prior to the start of field activities.

7.3 Supervisor Training

Personnel acting in a supervisory capacity will have received 8 hours of instruction in addition to the initial 40-hour training, as necessary. In addition, supervisors will have 1 year of field experience and training specific to work activities (i.e., sampling, construction observation, etc.).

7.4 Site-Specific Training

Prior to commencement of field activities, the PM or the SSO will verify GEI field personnel assigned to the project will have completed training that will specifically address the activities, procedures, monitoring, and equipment used in the Site operations. It will include Site and facility layout, hazards, and emergency services at the Site, and will highlight the provisions contained within this CHASP and applicable GEI H&S SOPs (Appendix E).

This training will be documented on the Project Safety Briefing Form (Appendix D). The signed form will be forwarded to the Safety Team at SafetyTeam@geiconsultants.com. In addition, GEI personnel will sign the plan to document that they understand the hazards and control measures presented and agree to comply with the procedures established in the CHASP. Personnel that have not received project-specific training will not be allowed on-Site.

7.5 On-Site Safety Briefings

Other GEI personnel will be given health and safety briefings daily by the SSO or field representative to assist GEI personnel in safely conducting work activities. The briefing will include GEI subcontractors. The briefings can include information on new operations to be conducted, changes in work practices, or changes in the Site's environmental conditions, as well as periodic reinforcement of previously discussed topics. The briefings will also provide a forum to facilitate conformance with safety requirements and to identify performance deficiencies related to safety during daily activities or as a result of safety inspections.

Documentation of these briefings will be recorded in the GEI field book, if the project duration is less than 5 days. If the project is longer than 5 days, the Tailgate Safety Briefing Form (Appendix D) will be used to document briefings. The meetings will also be an opportunity to periodically update the employees on monitoring results.

7.6 First Aid and CPR

The PM will verify that GEI field staff has current certifications in first aid and Cardiopulmonary Resuscitation (CPR), so that emergency medical treatment is available during field activities, as necessary. The training will be consistent with the requirements of the American Red Cross Association. GEI employees also attend annual Bloodborne Pathogens training in compliance with OSHA regulations.

8. Medical Surveillance Program

GEI maintains a continuous, corporate, medical surveillance program that includes a plan designed specifically for field personnel engaged in work at sites where hazardous or toxic materials may be present. GEI's CHSO and is responsible for the administration and coordination of medical evaluations conducted for GEI's employees at branch office locations. Comprehensive examinations are given to GEI field personnel on an annual or biennial basis (as determined to be appropriate by the CHSO) participating in hazardous waste operations. The medical results of the examinations aid in determining the overall fitness of employees participating in field activities.

Under the CHSO's supervision, field personnel undergo a complete initial physical examination, including a detailed medical and occupational history before they participate in hazardous waste site investigations. Extensive annual/biennial reexaminations are also performed. Upon completion of these tests, personnel are certified by an occupational health physician as to whether they are fit for field work in general and fit to use respiratory protection.

If a GEI employee or other project worker shows symptoms of exposure to a hazardous substance and wishes to be rechecked, he/she will be directed to the nearest area hospital or medical facility.

GEI subcontractor personnel that will be performing any intrusive work at the Site or enter any active waste handling or other active non-"clean" area must certify that they are participating in a medical surveillance program that complies with OSHA regulations for hazardous waste operations (i.e., 29 CFR 1910.120 and 29 CFR 1926.65). Proof of medical clearance will be submitted to the GEI PM or SSO prior to the start of field activities.

9. Atmospheric Monitoring

Air monitoring will be performed consistent with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan (Appendix F) to identify and quantify airborne levels of hazardous substances and safety and health hazards in order to determine the appropriate level of worker protection needed on-Site in the event that intrusive work is conducted. Work requiring air monitoring includes the installation and/or abandonment of monitoring wells, and soil vapor points. Additionally, PID screening of the well head space will be conducted during groundwater sampling activities.

GEI will conduct work zone monitoring for on-Site GEI employees during intrusive activities only. GEI will monitor and document daily Site conditions and operations and inform field representatives of results. ***If Action Levels are exceeded, the SSO will immediately implement Site action(s) according to Table 6 below and notify the PM and Safety Team***.

The following air monitoring equipment will be on Site:

- PID with 10.6 eV lamp or equivalent.
- Particulate Meter (PM-10 capable).

9.1 Equipment Use

9.1.1 Calibration

Air monitoring equipment will be calibrated and maintained in accordance with manufacturer's requirements. Calibrations will be recorded in the project notes daily or on a daily calibration form.

9.1.2 Photoionization Detector

Organic vapor concentrations will be measured using a PID during intrusive activities. During intrusive operations, organic vapor concentrations will be measured continuously. Organic vapor concentrations will be measured upwind of the work site(s) to determine background concentrations at least twice a day, (once in the morning and once in the afternoon). The SSO will interpret monitoring results using professional judgment and according to the alert and Action Limits set forth in the associated Site Work Plan.

9.2 Particulate Meter

A particulate meter will be used to measure airborne particulate matter during intrusive activities. Monitoring will be continuous, and readings will be averaged over a 15-minute period for comparison with the Action Levels. Monitoring personnel will make a best effort to collect dust monitoring data from downwind of the intrusive activity. If off-Site sources are considered to be the source of the measured dust, upwind readings will also be collected.

9.3 Action Levels

Table 6 provides a summary of real time air monitoring Action Levels and contingency plans for work zone activities. The below Action Levels are determined by halving the Permissible Exposure Limits (PELs) or Threshold Limit Values (TLVs) as set forth by OSHA and the American Conference of Government Industrial Hygienists (ACGIH). O2 values are based on the maximum use limits of a full-face respirator if oxygen were being displaced by a chemical.

Table 6. Real-Time Work Zone Air Monitoring Action Levels

Air Monitoring Instrument	Action Level (above background)	Site Action
PID	1.0 ppm	Use detector tube for benzene or zNose® to verify if concentration is benzene. No respiratory protection is required if benzene is not present.
PID	1.0 - 10 ppm	Use Sensidyne detector tube for naphthalene or zNose® to verify if concentration is naphthalene. No respiratory protection is required if naphthalene is not present.
	10 – 50 ppm	No respiratory protection is required if benzene or naphthalene is not present.
	50 – 100 ppm	Stop work, withdrawal from work area, institute engineering controls, if levels persist, upgrade to Level C.
	> 100 ppm	Stop work, withdraw from work area, notify PM and Safety Team.
Particulate Meter	150 µg/m^3	Implement work practices to reduce/minimize airborne dust generation, e.g., spray/misting of soil with water.

10. Site Control Measures

10.1 Buddy System

GEI personnel should be in line-of-sight or communication contact with another on-Site person. The other on-Site person should be aware of his or her role as a "buddy" and be able to provide assistance in the event of an emergency. A copy of this plan will be given to any person acting as a GEI "buddy" for informational purposes.

10.2 Sanitation for Temporary Work Sites

Sanitation requirements identified in the OSHA Standard 29 CFR 1926.51 "Sanitation" specifies that employees working at temporary project sites have at least one sanitary facility available to them. Temporary sanitary facilities including toilets will be available on-Site.

10.3 Illumination

Illumination requirements identified by OSHA are directed to work efforts inside buildings and/or during non-daylight hours. Activities planned for the Site are anticipated to occur outside during daylight hours. However, if work areas do not meet illumination requirements, they will be equipped with appropriate illumination that meets or exceeds requirements specified in OSHA Standard 29 CFR 1926.56 "Illumination." Employees will not work on sites that are not properly lighted.

10.4 Smoking

Smoking is prohibited at or in the vicinity of hazardous operations or materials. Where smoking is permitted, safe receptacles will be provided for smoking materials.

10.5 Alcohol and Drug Abuse Prevention

Alcohol and drugs will not be allowed on the Site. Project personnel under the influence of alcohol or drugs will not be allowed to enter the Site.

11. Incident Reporting

GEI will report incidents involving GEI personnel or subcontractor personnel, such as: lost time injuries, injuries requiring medical attention, near miss incidents, fires, fatalities, accidents involving the public, chemical spills, vehicle accidents, and property damage. The following steps must be followed when an incident occurs:

- In life-threatening situations, immediately call 9-1-1.
- Stop work activity to address any injury, illness, property damage, spill or other emergency.
- Immediately report any incidents to your Supervisor/Project Manager and Regional Health & Safety Officer.
- If your injury or illness is not life-threatening, call Medcor Triage at 1-800-775-5866 to speak with a medical professional.
- Complete an Incident Report Form immediately after addressing the incident.

For vehicle accidents involving another vehicle or damage to property, the employee will take pictures of each vehicle or property involved in the incident and obtain a police report. In some municipalities police will not be dispatched to a non-injury accident, but every effort needs to be made to try and obtain the report.

The Incident Report Form and the Near Miss Reporting Form can be found in Appendix D, on the GEI Health and Safety smartphone app, or on the Safety page of the GEI Intranet. To report subcontractor injuries or incidents, follow the same verbal reporting procedures and submit an email describing the event to the PM and the Safety Team.

11.1 Injury Triage Service

If a GEI employee experiences a work-related injury that is not life-threatening, the employee will initiate a call to Medcor Triage at 1-800-775-5866. The injured employee will detail any medical symptoms or complaints which will be evaluated by a Registered Nurse (RN) specially trained to perform telephonic triage. The RN will recommend first aid self- treatment or refer the injured employee for an off-Site medical evaluation by a health professional at a clinic within GEI's workers compensation provider network. GEI employees are still required to follow our Accident Reporting procedures as listed above.

12. Supplemental Contingency Plan Procedures

12.1 Hazard Communication Plan

GEI personnel have received hazard communication training as part of their annual health and safety training and new employee health and safety orientation training. Hazardous materials used on the Site will be properly labeled, stored, and handled. SDS will be available to potentially exposed employees.

12.2 Fire

In the event of a fire personnel will evacuate the area. GEI's field representative will contact the local fire department with jurisdiction and report the fire. Notification of evacuation will be made to the PM and the Safety Team. The field representative will account for GEI personnel and subcontractor personnel and report their status to the PM.

12.3 Medical Support

In case of minor injuries, on-site care will be administered with the Site first aid kit. For serious injuries, call 911 and request emergency medical assistance. Seriously injured persons should not be moved unless they are in immediate danger. Notify the PM and the Safety Team of the emergency.

Section 1 and Table 1 of this CHASP contain detailed emergency information, including directions to the nearest hospital, and a list of emergency services and their telephone numbers. In addition, Appendix A includes maps to the hospital and/or occupational health clinic. GEI field personnel will carry a cellular telephone.

12.4 Severe Weather

The contingency plan for severe weather includes reviewing the expected weather to determine if severe weather is in the forecast. Severe weather includes high winds over 30 miles per hour (mph), heavy rains or snow squalls, thunderstorms, tornados, and lightning storms. If severe weather is approaching, the decision to evacuate GEI personnel and subcontractor personnel from the Site will be the responsibility of GEI's field representative. Notification of evacuation will be made to the PM and the Safety Team. The field representative will account for GEI personnel and subcontractor personnel and report their status to the PM. If safe, work can resume 30 minutes after the last clap of thunder or flash of lightening.

12.5 Spills or Material Release

If a hazardous waste spill or material release occurs, if safe, the SSO or their representative will immediately assess the magnitude and potential seriousness of the spill or release based on the following:

- SDS for the material spilled or released.
- Source of the release or spillage of hazardous material.
- An estimate of the quantity released and the rate at which it is being released.
- The direction in which the spill or air release is moving.
- Personnel who may be or may have been in contact with the material, or air release, and possible injury or sickness as a result.
- Potential for fire and/or explosion resulting from the situation.
- Estimates of area under influence of release.

If the spill or release is determined to be within the on-Site emergency response capabilities, the SSO will verify implementation of the necessary remedial action. If the release is beyond the capabilities of the Site personnel, personnel will be evacuated from the immediate area and the local fire department will be contacted. The SSO will notify the PM and the Safety Team.

13. Health and Safety Plan Sign-Off

GEI personnel conducting site activities will be familiar with the information in this CHASP. After reviewing this plan, please sign the copy in the project files, and bring a copy of the plan with you to the Site. By signing this site-specific CHASP you are agreeing that you have read, understand, and will adhere to the provisions described in this plan while working on the Project Site below.

Site Name: NYSDEC BCP Site No. C203077
Enclave at 241st Street Development
Investigation: NYSDEC BCP Remedial Action
GEI Project No: 2303902

Print Name	Signature
Project Manager: Nicholas Recchia	

Appendix A

Map to Hospital and Occupational Health Clinic

Appendix B

Safety Data Sheets

Construction Health and Safety Plan
NYSDEC BCP Site No. C203077
Enclave on 241st Development
714 East 241st Street, Bronx, New York 10470
July 2024

Appendix C

Heat and Cold Stress Guidelines

Appendix D

Forms

Construction Health and Safety Plan
NYSDEC BCP Site No. C203077
Enclave on 241st Development
714 East 241st Street, Bronx, New York 10470
July 2024

Appendix E

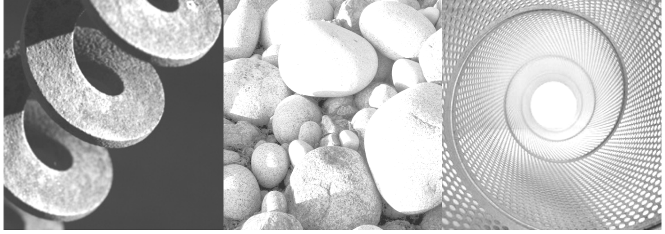
GEI Health and Safety SOPs

Appendix F

Generic Community Air Monitoring Program

APPENDIX F

QUALITY ASSURANCE PROJECT PLAN



Consulting
Engineers and
Scientists

Quality Assurance Project Plan

Enclave on 241st Development
NYSDEC BCP Site No. C203077
714 East 241st Street
Bronx, NY 10470

Submitted by:
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1000 New York Avenue, Suite B
Huntington Station, NY 11746
631.760.9300

July 2024
Project 2303902

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1. Introduction

This Quality Assurance Project Plan (QAPP) has been prepared to describe the measures that will be taken to ensure that the data generated during performance of site management and post-remedial sampling work at 714 East 241st Street, Bronx York, New York (Site) are of quality sufficient to meet project-specific data quality objectives (DQOs).

The QAPP was prepared in accordance with the guidance provided in New York State Department of Environmental Conservation (NYSDEC) Technical Guidance DER-10 (Technical Guidance for Site Investigation and Remediation), and the United States Environmental Protection Agency's (USEPA's) Guidance for the DQO Process (EPA QA/4). A summary of the field and laboratory sampling is provided in Table 1.

2. Background, Objectives, and Scope

In order to achieve project objectives, GEI Consultants, Inc., P. C. (GEI) has developed a scope of work that includes the collection of post-remedial groundwater and soil vapor samples, as outlined in the Site Management Plan (SMP) to which this QAPP is appended.

2.1 Post-Remedial Groundwater Sample Collection

Once the proposed groundwater well network is installed, groundwater samples will be collected and analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and RCRA Metals. Groundwater sample collection field and quality control sampling frequency are summarized in Table 2.

3. Project Organization

The overall management structure and a general summary of the responsibilities of project team members are presented below.

Project Principal

Gary Rozmus, of GEI, will serve as Project Principal. The Project Principal is responsible for defining project objectives and bears ultimate responsibility for the successful completion of the investigation.

Project Manager

Leif Robertson, of GEI, will serve as Project Manager. This individual will provide overall management for the implementation of the scope of work and will coordinate all field activities. The Project Manager is also responsible for data review/interpretation and report preparation. Activities of the Project Manager are supported by the Quality Assurance Officer.

Quality Assurance Officer (QAO)

A representative, of GEI, will serve as QAO. The QAO will review sampling procedures and certify that the data was collected and analyzed using the appropriate procedures. This individual will provide coordination with the analytical laboratory and the data validator to resolve any problems. The proposed data validator is Judy V. Harry of Data Validation Services.

Field Team Leader

The Field Team Leader will be determined prior to the start of work. The Field Team Leader bears the responsibility for the successful execution of the field program, as scoped in the Field Activities Plan (FAP) and the SMP. The Field Team Leader will direct the activities of all technical staff in the field as well all subcontractors. The Field Team Leader will also assist in the interpretation of data and in report preparation. The Field Team Leader reports to the Project Manager.

Laboratory Project Manager

The Laboratory Project Manager is Kevin Hoogerhyde. The Laboratory Project Manager will be responsible for sample container preparation, sample custody in the laboratory, and completion of the required analysis through oversight of the laboratory staff. The Laboratory Project Manager will ensure that quality assurance procedures are followed and that an acceptable laboratory report is prepared and submitted. The Laboratory Project Manager reports to the Field Team Leader.

4. Sampling Procedures

Sampling for the Site will include post-remedial groundwater sampling and soil vapor intrusion evaluation sampling to assess the performance of the remedial excavations.

4.1 Sample Type, Location, and Frequency

4.1.1 Groundwater Samples

The network of monitoring wells will be installed to monitor upgradient and downgradient groundwater conditions at the site. The proposed wells will be constructed of two-inch diameter schedule 40 PVC with 0.020-inch slotted screen. Each well is capped with a J-plug and covered with a five-inch diameter flush mounted steel manhole cover.

Once the monitoring well network is installer, groundwater samples will be collected and submitted for laboratory analysis in accordance with the Field Activities Plan included in Appendix H of the SMP.

4.1.3 Field QC Sample Collection

Field QC samples are used to monitor the reproducibility and representativeness of field sampling activities. The field QC samples are handled, transported and analyzed in the same manner as the associated field samples. For groundwater sampling, field QC samples will include equipment blanks, trip blanks, field duplicates and MS/MSDs. For sub-slab soil vapor sampling, field QC will include a replicate sample. The quantity, field QC sample type and analysis is detailed in Table 1.

Equipment Blank Samples are used to monitor the adequacy of decontamination procedures and possible sources of contamination such as potential laboratory methodologies. Equipment blanks will consist of laboratory-supplied, distilled or de-ionized water and will be used to check for potential contamination of the equipment which may cause sample contamination. Equipment blanks will be collected by routing the distilled water through a decontaminated piece of sampling equipment or disposable sampling equipment into laboratory supplied bottles. Non-dedicated field equipment will be decontaminated as specified below in subsection 4.3. Equipment blanks will be submitted to the laboratory at a frequency of one per twenty samples per matrix per parameter. Equipment blanks will not be completed for waste characterization sampling activities.

Trip Blank Samples will consist of analyte-free water and will be prepared by the laboratory. Trip blanks are used to assess the potential for VOC contamination of samples due to contaminant migration during sample shipment and storage. Trip blanks will be transported to the project location unopened, stored with the site characterization samples, and kept closed until analyzed by the laboratory. Trip blanks will be submitted to the laboratory at a frequency of one per cooler which contains samples submitted for VOC analysis.

Field Duplicate Samples, also referred to as blind duplicate samples, are two samples that are submitted from the same interval using the same sample procedures. Field duplicates will be used to assess the sampling and analytical reproducibility. Both samples are collected utilizing the same methods and are submitted for the same laboratory analysis however different sample identification numbers are used. Field duplicates will be submitted at a frequency of one per 20 samples for all matrices and all parameters. Field duplicates will not be completed for waste characterization sampling activities.

MS/MSD Samples are two additional aliquots of the same sample submitted for the same parameters as the original sample. However, the additional aliquots are spiked with the compounds of concern. Matrix spikes provide information about the effect of the sample matrix on the measurement methodology. MS/MSDs will be submitted at a frequency of one per 20 investigative samples per matrix for organic and inorganic parameters. MS/MSDs will not be completed for waste characterization sampling activities.

4.2 Sample Preservation and Containerization

The analytical laboratory will supply the sample containers for the chemical samples. These containers will be cleaned by the manufacturer to meet or exceed all analyte specifications established in the latest USEPA’s Specifications and Guidance for Contaminant-Free Sample Containers. Certificates of analysis are provided with each bottle lot and maintained on file. to document conformance to USEPA specifications. The containers will be pre-preserved, where appropriate. Sample preservation and containerization details are outlined in Table 3.

4.3 Equipment Decontamination

All non-dedicated sampling equipment will be cleaned prior to and between each use in the following manner:

- Wash/scrub with a biodegradable degreaser (“Simple Green”) if there is oily residue on equipment surface.

- Tap water rinse.
- Wash and scrub with Alconox (or non-phosphate soap) and water mixture.
- Tap water rinse.

Decontamination fluids will be containerized into United States Department of Transportation/United Nations (USDOT/UN)-approved 55-gallon drums or containment vessels and will be characterized and disposed of by an approved disposal facility.

5. Quality Assurance/Quality Control

The primary intended use for the endpoint sample data is to document the groundwater concentrations and sub-slab soil vapor levels achieved by the remedy. The primary DQO of the sampling program, therefore, is that data be accurate and precise, and hence representative of the actual Site conditions. Accuracy refers to the ability of the laboratory to obtain a true value (i.e., compared to a standard) and is assessed through the use of laboratory quality control (QC) samples, including laboratory control samples and matrix spike samples, as well as through the use of surrogates, which are compounds not typically found in the environment that are injected into the samples prior to analysis. Precision refers to the ability to replicate a value and is assessed through both field and laboratory duplicate samples.

Sensitivity is also a critical issue in generating representative data. Laboratory equipment must be of sufficient sensitivity to detect target compounds and analytes at levels below NYSDEC standards and guidelines whenever possible. Equipment sensitivity can be decreased by field or laboratory contamination of samples, and by sample matrix effects. Assessment of instrument sensitivity is performed through the analysis of reagent blanks, near-detection-limit standards, and response factors. Potential field and/or laboratory contamination is assessed through use of trip blanks, method blanks, and equipment rinse blanks (also called “field blanks”).

Table 1 lists the field and laboratory QC samples that will be analyzed to assess data accuracy and precision, as well as to determine if equipment sensitivity has been compromised. Appendix I of the SMP shows the reporting limits and minimum detection limits achievable by the laboratory.

All sample analyses (i.e., TCL VOCs, TCL SVOCs, RCRA Metals) will be performed in accordance with the NYSDEC Analytical Services Protocol (ASP), using USEPA SW-846 methods. A laboratory will be selected to analyze the field samples collected during endpoint sample collection and will maintain a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP) certification for each of the analyses listed in Section 2.0.

All laboratory data are to be reported in NYSDEC ASP Category B deliverables and will be delivered to NYSDEC in electronic data deliverable (EDD) format as described on NYSDEC’s website (http://www.dec.ny.gov/chemical/62440.html). A Quality Assurance Glossary is presented in Appendix B.

Tables

Table 1. Field and Laboratory QC Summary
Quality Assurance Project Plan
714 East 241st Street
Bronx, New York
Site No. C203077

AC Check Type	**Minimum Frequency**	**Use**
	Field QC	
Duplicate	1 per matrix per 20 samples or SDG*	Precision
Trip Blank	1 per VOC cooler	Sensitivity
Field Blank	1 per matrix per 20 samples	Sensitivity
	Laboratory QC	
Laboratory Control Sample	1 per matrix per SDG	Accuracy
Matrix Spike/Matrix Spike Duplicate/Matrix Duplicate*	1 per matrix per SDG	Accuracy/Precision
Surrogate Spike	All organics samples	Accuracy
Laboratory Duplicate	1 per matrix per SDG	Precision
Method Blank	1 per matrix per SDG	Sensitivity

Notes:

* SDG - Sample Delivery Group - Assumes a single extraction or preparation

** Provided to lab by field sampling personnel

Table 2. Quality Control Sampling Summary
Quality Assurance Project Plan
714 East 241st Street
New York, New York
Site No. C203077

Sample Medium	Target Analytes	Field Samples	Duplicates (1)	Trip Blanks (2)	Field Blanks	Matrix Spikes	Spike Duplicates	Total No. of Samples
Groundwater	TCL VOCs	4	1	1	1	1	1	9
	TCL SVOCs	4	1	NA	1	1	1	8
	RCRA Metals	4	1	NA	1	1	1	8

Notes:

(1) - Based on 1 per 20 samples or 1 per Sample Delivery Group

(2) - Based on 1 cooler per day

TCL - USEPA Contract Laboratory Program Target Compound List

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

NA - Not Applicable

Table 3. Preservation, Holding Times, and Sample Containers
Quality Assurance Project Plan
714 East 241st Street
New York, New York
Site No. C203077

Analysis	Method	Matrix	Bottle Type	Preservation (a)	Holding Time (b)
TCL VOCs	EPA 8260C	Groundwater	40mL voa vial, teflon lined cap	Cool to 4°C	14 days from sample collection
TCL SVOCs	EPA 8270D	Groundwater	1 liter amber glass, teflon lined cap	Cool to 4°C	14 days to extract, 40 days to analysis 7 days to extract, 40 days to analysis
RCRA Metals	EPA 6010D	Groundwater	500 mL plastic, HNO3	Cool to 4°C	180 days from sample collection

Notes:

(a) All soil samples to be preserved in ice during collection and transport

(b) Days from date of sample collection.

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic Compounds

TCL - Target Compound List

Appendix A

Quality Assurance Glossary

Quality Assurance Glossary

“Alteration” means altering a sample collected for analysis in any way other than by adding a preservative, such as nitric acid to lower pH. Examples of alteration include, but are not limited to: filtering, settling and decanting, centrifuging and decanting, and acid extracting.

“Analytical Services Protocol” or “ASP” means the NYSDEC’s compendium of approved EPA and NYSDEC laboratory methods for sample preparation and analysis and data handling procedures.

“Correlation Sample” means a sample taken, when using a field-testing technology, to be analyzed by an ELAP-certified laboratory to determine the correlation between the laboratory and field analytical results.

“Confirmatory Sample” means a sample taken after remedial action is expected to be complete to verify that the cleanup requirements have been met. This term has the same meaning as “post remediation sample.”

“Contract laboratory program” or “CLP” means a program of chemical analytical services developed by the United States Environmental Protection Agency (EPA) to support CERCLA.

“Data Usability Summary Report, (DUSR)” is a document that provides a thorough evaluation of the analytical data to determine whether or not the data, as presented, meets the site/project specific criteria for data quality and use.

“Effective solubility” means the theoretical aqueous solubility of an organic constituent in groundwater that is in chemical equilibrium with a separate phase mixed product (product containing several organic chemicals). The effective solubility of a particular organic chemical can be estimated by multiplying its mole fraction in the product mixture by its pure phase solubility.

“Environmental Laboratory Accreditation Program” or “ELAP” means a program conducted by the New York State Department of Health (NYSDOH), which certifies environmental laboratories through onsite inspections and evaluation of principles of credentials and proficiency testing.

“Filtration” means the filtering of a groundwater or surface water sample, collected for metals analysis, at the time of collection and prior to preservation. Filtering includes, but is not limited to, the use of any membrane, fabric, paper or other filter medium, irrespective of pore size, to remove particulates from suspension.

“**Final delineation sample**” means a sample taken as an endpoint sample, used to make a decision regarding the extent of contamination at a site, which is to be analyzed by an ELAP-certified laboratory.

“Intermediate Sample” means a sample taken during the investigation process that will be followed by another sampling event to confirm that remediation was successful or to confirm that the extent of contamination has been defined to below a level of concern.

“Method detection limit” or “MDL” means the minimum concentration of a substance that can be measured and reported with a 99 percent confidence that the analyte concentration is greater than zero and is determined from the analysis of a sample in a given matrix containing the analyte.

“Minimum reporting limit” means the lowest concentration at which an analyte can be detected and which can be reported with a reasonable degree of accuracy. It is the lowest concentration that can be measured, a lab-specific number, developed from minimum detection limits, and is also referred to as the practical quantitation limit (PQL).

“Nephelometric Turbidity Unit” or "NTU" is the unit by which turbidity in a sample is measured.

“Non-targeted compound” means a compound detected in a sample using a specific analytical method that is not a targeted compound, a surrogate compound, a system monitoring compound or an internal standard compound.

“Practical quantitation level” or “PQL” means the lowest quantitation level of a given analyte that can be reliably achieved among laboratories within the specified limits of precision and accuracy of a given analytical method during routine laboratory operating conditions.

"Preservation" means preventing the degradation of a sample due to precipitation, biological action, or other physical/chemical processes between the time of sample collection and analysis. The most common examples involve refrigeration at 4 degrees Celsius and lowering sample pH by the addition of acid to keep dissolved metals in solution or to reduce the biodegradation of dissolved organic analytes.

“PAH” means polycyclic aromatic hydrocarbon as defined by USEPA Method 8270.

“Quality assurance” or “QA” means the total integrated program for assuring the reliability of monitoring and measurement data, which includes a system for integrating the quality planning, quality assessment and quality improvement efforts to meet data end-use requirements.

“Quality assurance project plan” or “QAPP” means a document, which presents in specific terms the policies, organization, objectives, functional activities, and specific quality assurance/quality control activities designed to achieve the data quality goals or objectives of a specific project or operation.

“Quality control” or “QC” means the routine application of procedures for attaining prescribed standards of performance in the monitoring and measurement process.

“Semi-volatile organic compound” or “SVOC” means compounds amenable to analysis by extraction of the sample with an organic solvent. For the purposes of this section, semi-volatiles are those target compound list compounds identified in the statement of work in the current version of the EPA Contract Laboratory Program.

“Targeted compound” means a hazardous substance, hazardous waste, or pollutant for which a specific analytical method is designed to detect that potential contaminant both qualitatively and quantitatively.

"Tentatively identified compound or TIC" means a chemical compound that is not on the target compound list but is detected in a sample analyzed by a GC/MS analytical method. TICs are only possible with methods using mass spectrometry as the detection technique. The compound is tentatively identified using a mass spectral instrumental electronic library search and the concentration of the compound estimated.

“Unknown compound” means a non-targeted compound which cannot be tentatively identified. Based on the analytical method used, the estimated concentration of the unknown compound may or may not be determined.

“Volatile organic compounds” or “VOC” means organic compounds amenable to analysis by the purge and trap technique. For the purposes of this chapter, analysis of volatile organics means the analysis of a sample for either those priority pollutants listed as amenable for analysis using EPA method 624 or those target compounds identified as volatiles in the version of the EPA “Contract Laboratory Program Statement of Work for Organics Analysis, Multi-Media, Multi-Concentration” in effect as of the date on which the laboratory is performing the analysis.

“**Waste oil”** means used and/or reprocessed engine lubricating oil and/or any other used oil, including but not limited to: fuel oil, engine oil, gear oil, cutting oil, transmission fluid, oil storage tank residue, animal oil and vegetable oil, which has not subsequently been refined.

“Well development” means the application of energy to a newly installed well to establish a good hydraulic connection between the well and the surrounding formation. During development, fine-grained formation material that may have infiltrated the sand pack and/or well during installation is removed, allowing water from the formation to enter the well without becoming turbid and unrepresentative of groundwater in the formation.

Quality Assurance Glossary

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“Well development” means the application of energy to a newly installed well to establish a good hydraulic connection between the well and the surrounding formation. During development, fine-grained formation material that may have infiltrated the sand pack and/or well during installation is removed, allowing water from the formation to enter the well without becoming turbid and unrepresentative of groundwater in the formation.

APPENDIX G

SITE MANAGEMENT FORMS

SITE INSPECTION LOG
ENCLAVE ON 241ST DEVELOPMENT
C203077
714 EAST 241ST STREET
BRONX, NEW YORK

Date: ___________________________ **Time:** ____________________________

Inspector: _______________________ **Weather:** _________________________

Purpose of Site Visit: Routine Site Inspection -OR- Incident Report

General Observations (note condition, and damage (if any) including, severity, and impacts, etc.)

Overall Site:

____

Building Foundation / Slab:

____

Soil Cover / Landscaping:

____

Concrete Sidewalks:

____

Permeable Paver Walkways:

____

Signs of Erosion:

____

Evidence of Excavation:

____

Persons Contacted & Time:

____

SITE INSPECTION LOG
ENCLAVE ON 241ST DEVELOPMENT
C203077
714 EAST 241ST STREET
BRONX, NEW YORK

Monitoring Point Locations:

Groundwater Monitoring Wells	Location Ok?	Problems/Issues
TBD		

Recommendations:

____

____

____

Representative Site Photos and Description:

Summary of Green Remediation Metrics for Site Management

Site Name: Enclave on 241st Development Site Code: C203077
Address: 714 East 241st Street City: Bronx
State: New York Zip Code: 10470 County: Bronx

Initial Report Period (Start Date of period covered by the Initial Report submittal)
Start Date: ____________________

Current Reporting Period
Reporting Period From: ______________________To: __________________________

Contact Information
Preparer's Name: ___________________________ Phone No.: ____________________
Preparer's Affiliation: ___________________________________

I. Energy Usage: Quantify the amount of energy used directly on-site and the portion of that derived from renewable energy sources.

	Current Reporting Period	**Total to Date**
Fuel Type 1 (e.g. natural gas (cf))		
Fuel Type 2 (e.g. fuel oil, propane (gals))		
Electricity (kWh)		
Of that Electric usage, provide quantity:		
Derived from renewable sources (e.g. solar, wind)		
Other energy sources (e.g. geothermal, solar thermal (Btu))		

Provide a description of all energy usage reduction programs for the site in the space provided on Page 3.

II. Solid Waste Generation: Quantify the management of solid waste generated on-site.

	Current Reporting Period (tons)	**Total to Date (tons)**
Total waste generated on-site		
OM&M generated waste		
Of that total amount, provide quantity:		
Transported off-site to landfills		
Transported off-site to other disposal facilities		
Transported off-site for recycling/reuse		
Reused on-site		

Provide a description of any implemented waste reduction programs for the site in the space provided on Page 3.

III. Transportation/Shipping: Quantify the distances travelled for delivery of supplies and lab-supplied bottles, shipping of laboratory samples, and the removal of waste.

	Current Reporting Period (miles)	**Total to Date (miles)**
Standby Engineer/Contractor		
Laboratory Courier/Delivery Service (bottle and sample delivery)		
Waste Removal/Hauling		

Provide a description of all mileage reduction programs for the site in the space provided on Page 3. Include specifically any local vendor/services utilized that are within 50 miles of the site.

IV. Water Usage: Quantify the volume of water used on-site from various sources.

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-site (not including treated water)		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-site groundwater usage		
Collected or diverted storm water usage		

Provide a description of any implemented water consumption reduction programs for the site in the space provided on Page 3.

V. Land Use and Ecosystems: Quantify the amount of land and/or ecosystems disturbed and the area of land and/or ecosystems restored to a pre-development condition (i.e. Green Infrastructure).

	Current Reporting Period (acres)	**Total to Date (acres)**
Land disturbed		
Land restored		

Provide a description of any implemented land restoration/green infrastructure programs for the site in the space provided on Page 3.

Description of green remediation programs reported above (Attach additional sheets if needed)
Energy Usage:
Waste Generation:
Transportation/Shipping:
Water usage:
Land Use and Ecosystems:
Recommendations/Other:

CONTRACTOR CERTIFICATION

I, ____________________________ (**Name**) do hereby certify that I am _______________________ (**Title**) of ___________________ (**Contractor Name**), which is responsible for the work documented on this form. According to my knowledge and belief, all of the information provided in this form is accurate and the site management program complies with the DER-10, DER-31, and CP-49 policies.

____

Date **Contractor**

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

This form is based on the information required by DER-10, Section 5.4(e) and 6NYCRR Part 360.13. Use of this form is not a substitute for reading the applicable regulations and Technical Guidance document.

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

How many cubic yards of soil will be imported/reused? Choose an item

If greater than 1000 cubic yards will be imported, enter volume to be imported:

SECTION 2 – MATERIAL OTHER THAN SOIL

Is the material to be imported gravel, rock or stone? Choose an item

Does it contain less than 10%, by weight, material that passes a size 100 sieve? Choose an item

Is this virgin material from a permitted mine or quarry? Choose an item

Is this material recycled concrete or brick from a DEC registered processing facility? Choose an item

SECTION 3 - SAMPLING

Provide a brief description of the number and type of samples collected in the space below:

Example Text: 5 discrete samples were collected and analyzed for VOCs. 2 composite samples were collected and analyzed for SVOCs, Inorganics & PCBs/Pesticides.

If the material meets requirements of DER-10 section 5.4(e)5 (other material), no chemical testing needed.

SECTION 3 CONT'D - SAMPLING

Provide a brief written summary of the sampling results or attach evaluation tables (compare to DER-10, Appendix 5):

Example Text: Arsenic was detected up to 17 ppm in 1 (of 5) samples; the allowable level is 16 ppm.

If Ecological Resources have been identified use the "If Ecological Resources are Present" column in Appendix 5.

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

Identification of any state or local approvals as a fill source:

If no approvals are available, provide a brief history of the use of the property that is the fill source:

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

Signature

Date

Print Name

Firm

APPENDIX H

FIELD ACTIVITIES PLAN

July 2024

FIELD ACTIVITIES PLAN

Enclave on 241st Street
NYSDEC BCP Site No. C203077
714 East 241st Street
Bronx, New York 10470

Prepared for

Enclave 241 L.P
11 Great Neck Road Suite 308
Great Neck, NY 11021
(516) 730-9302

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2. Proposed Groundwater, Sub-slab Soil Vapor and Indoor/Ambient Air Sampling Locations a.
3. Preservation, Holding Times, and Sample Containers

ATTACHMENTS

1. GEI Standard Operating Procedure for Tasks Described in this Field Activities Plan
2. Chain of Custody Form

1.0 INTRODUCTION

GEI Consultants, Inc., P.C. (GEI) has developed this Field Activities Plan (FAP) to describe in detail the field sampling methods to be used during performance of the Post-Remedial Sampling and Site Management activities at 714 East 241st Street, Bronx, New York (Site).

The FAP was prepared in accordance with directives provided in the DER-10 Technical Guidance for Site Investigation and Remediation (May 2010) issued by the New York State Department of Environmental Conservation (NYSDEC), as well as 6 NYCRR Part 375 and provides guidelines and procedures to be followed by field personnel during performance of the Post-Remedial Sampling and Site Management activities. Information contained in this FAP relates to sampling objectives, sampling locations, sampling frequencies, sample designations, sampling equipment, sample handling, sample analysis, and decontamination.

2.0 SAMPLING OBJECTIVES

The Site has undergone prior Site characterization work and a Remedial Action including site-wide excavation to a terminal depth of 15-feet was conducted at the Site in 2023 through 2024, by GEI.

The objective of the proposed sampling is to evaluate the effectiveness of the remedy. Groundwater sampling will in the sidewalk surrounding the Site upgradient, cross gradient and down gradient to assess the performance of the remedy (i.e., source area removal, and chemical oxidation application to performed by Langan in 2021).

The sampling procedures associated with characterization of groundwater and soil vapors are discussed in detail in Section 4 of this FAP. A discussion of the data quality objectives (DQOs) is provided in the Quality Assurance Project Plan (QAPP) located in Appendix F of the Site Management Plan (SMP). The DQOs will be completed in compliance with DER-10 3.2.2(d).

3.0 SAMPLE MEDIA, LOCATIONS, ANALYTICAL SUITES, AND FREQUENCY

The media to be sampled during the Post-Remedial Sampling and Site Management activities include groundwater. A discussion of the sampling schedule for groundwater is provided below, while the assumed number of field samples to be collected, including quality control (QC) samples, is shown in Table 1 of this FAP. Specifics regarding the collection of samples at each location and for each task are provided in Section 4 of this FAP.

3.1 Groundwater Sampling

A total of four groundwater samples will be collected from four new permanent monitoring wells that will be installed (RIMW-01 through RIMW-04) to establish groundwater quality conditions at the site following source area removal, and chemical oxidation application preformed at the Site. The wells will be installed to approximately based on an anticipated groundwater depth of 8 to 11 feet below land surface (bls).

After gauging to confirm there is no separate-phase petroleum using an oil/water interface probe, each well will be sampled for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs) and TAL metals (total and dissolved). In addition to the four groundwater samples, one field duplicate, one field blank, and one trip blank will be analyzed (Table 1).

4.0 FIELD SAMPLING PROCEDURES

This section provides a detailed discussion of the field procedures to be used during sampling of the various media being evaluated as part of the Post-Remedial Sampling and Site Management activities (i.e., groundwater and soil vapor). The locations are shown on Figure 7 of the SMP and additional information including intervals to be sampled and sample rationale is provided in Table 2 of this FAP.

4.1 Monitoring Well Installation

A dedicated field book and/or field data sheets will be used to record soil lithology, well installation details, well development data, purge volumes, field instrument readings and any other noteworthy field conditions. Details for the installation of monitoring wells PRMW-1 through PRMW-4 and are provided below.

Boreholes will be pre-cleared using non-intrusive methods prior to advancement of soil borings and monitoring well pilot-boreholes to verify the absence of utilities. Should a utility be observed during pre-clearance activities, the sampling location will be relocated to no greater than 10 feet away from the original proposed location. Should the sampling location need to be located at a distance greater than 10 feet from the original proposed location due to access constraints, GEI will contact the NYSDEC case manager to confirm and approve the deviations.

4.1.1 Monitoring Well Details

Shallow water-table monitoring wells will be installed bridging the water table, depending on the observed water table at the time of installation.

Monitoring wells will be installed using the hollow stem auger drilling method and constructed of 2-inch inside diameter, Schedule 40 polyvinyl chloride (PVC) casing and 0.020-inch slot machined screen. Well screens will be 10 feet long and will be installed five feet above and five feet below the water table due to the potential for tidal influence and may be adjusted based conditions observed in the field.

A sand pack will be placed around the well screen, extending 2 feet above the top of the screened zone. Once the driller confirms the depth of the sand pack, a minimum 2-foot-thick bentonite pellet seal will be placed above the sand pack. Once the pellets have been allowed to hydrate, a cement-bentonite grout will be pumped into the remaining annular space from the bottom up using a tremie pipe lowered to just above the bentonite seal. The wells will be completed using locking well plugs, and flush mounted, bolt down, watertight, manhole covers cemented into place. Following installation, the new monitoring wells will be surveyed.

Each monitoring well will be developed to remove any fine-grained material in the vicinity of the well screen and to promote hydraulic connection with the aquifer. The wells will be developed using a submersible pump, which will be surged periodically until well yield is consistent and has a turbidity below 50 Nephelometric turbidity units (NTUs).

4.2 Groundwater Sampling

Groundwater sampling will be completed in compliance with DER-10 3.7.2. Details for the collection of groundwater samples are provided below. Groundwater samples will be collected according to Table 2 of this FAP.

Groundwater samples will be collected no sooner than one week following development of the wells. Prior to sampling, depth to water will be measured at each well using an electronic oil/water interface probe with an accuracy of +/-0.01 feet. Groundwater gauging data will be used to determine groundwater elevation, which is tidally influenced due to the proximity of the Site to the Harlem River. The wells will then be purged and sampled using a peristaltic pump or an alternative method, depending on the observed depth to groundwater and logistical issues.

Purging and sampling will be performed consistent with USEPA Low Stress Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, dated July 30, 1996 and revised January 19, 2010. Field parameters (i.e., pH, dissolved oxygen, ORP, etc., as described in the USEPA low-flow sampling requirements) will be collected using a water quality meter with flow-through cell until parameters stabilized before samples are collected. Samples will be analyzed for TCL + 30/TAL. Additional details for the collection of groundwater samples are included in the GEI SOPs (Attachment 1).

All groundwater samples will be placed in the laboratory-supplied containers and shipped to the laboratory under chain of custody procedures in accordance with GEI’s SOPs.

5.0 SAMPLE HANDLING AND ANALYSIS

To ensure quality data acquisition and collection of representative samples, there are selective procedures to minimize sample degradation or contamination. These include procedures for preservation of the samples as well as sample packaging and shipping procedures.

5.1 Field Sample Handling

The types of containers, volumes needed, and preservation techniques for the aforementioned testing parameters are presented in Table 3.

5.2 Sample Custody Documentation

The purpose of documenting sample custody is to confirm that the integrity and handling of the samples is not subject to question. Sample custody will be maintained from the point of sampling through the analysis. Specific procedures regarding sample tracking from the field to the laboratory are described in GEI's SOP for Sample Management (Attachment 1).

Each individual collecting samples is personally responsible for the care and custody of the samples. All sample labels will be pre-printed or filled out using waterproof ink. The technical staff will review all field activities with the Field Team Leader to determine whether proper custody procedures were followed during the fieldwork and to decide if additional samples are required.

All samples being shipped off-site for analysis must be accompanied by a properly completed chain of custody form (Attachment 2 or similar). The sample numbers will be listed on the chain of custody form. When transferring the possession of samples, individuals relinquishing and receiving will sign, date, and note the time on the record. This record documents transfer of custody of samples from the sampler to another person, to/from a secure storage area, and to the laboratory.

Samples will be packaged for laboratory pick up and/or shipment with a separate signed custody record enclosed in each sample box or cooler. Shipping containers will be locked and/or secured with strapping tape in at least two locations for shipment to the laboratory.

5.3 Sample Shipment

Laboratory courier services are the preferred method for sample transport on this project. However, in the event that samples are shipped to the laboratory the following procedures will apply. Sample packaging and shipping procedures are based upon USEPA specifications, as well as U.S. Department of Transportation (DOT) regulations. The procedures vary according to potential sample analytes, concentration, and matrix, and are designed to provide optimum protection for the samples and the public. Sample packaging and shipment must be performed using the general outline described below. Additional information regarding sample handling is provided in GEI's SOP for Sample Management (Attachment 1).

All samples will be shipped the same day of collection (when possible) and will be preserved appropriately from the time of sample collection. A description of the sample packing and shipping procedures is presented below:

1. Prepare cooler(s) for shipment.
   - Tape drain(s) of cooler shut
   - Affix "this side up" arrow labels and "fragile" labels on each cooler
   - Place mailing label with laboratory address on top of cooler(s)
2. Arrange sample containers in groups by sample number or analyte.
3. Ensure that all bottle labels are completed correctly. Place clear tape over bottle labels to prevent moisture accumulation from causing the label to peel off.
4. Arrange containers in front of assigned coolers.
5. Place packaging material at the bottom of the cooler to act as a cushion for the sample containers.
6. Arrange containers in the cooler so that they are not in contact with the cooler or other samples.
7. Fill remaining spaces with packaging material.
8. Ensure all containers are firmly packed with packaging material.

9. If ice is required to preserve the samples, ice cubes should be repackaged in double Zip-Loc™ bags, and placed on top of the packaging material.

10. Sign chain of custody form (or obtain signature) and indicate the time and date it was relinquished to Federal Express or other carrier, as appropriate.

11. Separate chain of custody forms. Seal proper copies within a large Zip-Loc™ bag and tape to cooler. Retain copies of all forms.

12. Close lid and latch.

13. Secure each cooler using custody seals.

14. Tape cooler shut on both ends.

15. Relinquish to Federal Express or other courier service as appropriate. Retain airbill receipt for project records. (Note: All samples will be shipped for "NEXT A.M." delivery).

16. Telephone laboratory contact and provide him/her with the following shipment information:
    - Sampler's name.
    - Project name.
    - Number of samples sent according to matrix and concentration.
    - Airbill number.

6.0 SITE CONTROL PROCEDURES

Site control procedures, including decontamination and waste handling and disposal, are discussed below.

6.1 Decontamination

In an attempt to avoid the spread of contamination, all drilling and sampling equipment must be decontaminated at a reasonable frequency in a properly designed and located decontamination area, as necessary. Detailed procedures for the decontamination of field and sampling equipment are included in GEI's SOPs for Equipment Decontamination, which is provided in Attachment 1.

The location of any established decontamination area will be determined prior to the start of field operations. Such decontamination area will be constructed to ensure that all wash water generated during decontamination can be collected and containerized for proper disposal.

6.2 Waste Handling and Disposal

All waste materials (drill cuttings, purge water, decontamination water, etc.) generated during the Post-Remedial Sampling and Site Management activities will be consolidated and stored in appropriately labeled bulk containers [55-gallon United Nations (UN)/Department of Transportation (DOT) approved steel drums, etc.], and temporarily staged at an investigation-derived-waste storage area on-site, as necessary. GEI will then coordinate waste characterization and disposal by appropriate means.

TABLES

1. Field and Quality Control Sampling Summary
2. Proposed Groundwater, Sub-slab Soil Vapor and Indoor/Ambient Air Sampling Locations
3. Preservation, Holding Times, and Sample Containers

Table 1. Field and Laboratory QC Summary
Quality Assurance Project Plan
714 East 241st Street
Bronx, New York
Site No. C203077

AC Check Type	Minimum Frequency	Use
Field QC		
Duplicate	1 per matrix per 20 samples or SDG*	Precision
Trip Blank	1 per VOC cooler	Sensitivity
Field Blank	1 per matrix per 20 samples	Sensitivity
Laboratory QC		
Laboratory Control Sample	1 per matrix per SDG	Accuracy
Matrix Spike/Matrix Spike Duplicate/Matrix Duplicate*	1 per matrix per SDG	Accuracy/Precision
Surrogate Spike	All organics samples	Accuracy
Laboratory Duplicate	1 per matrix per SDG	Precision
Method Blank	1 per matrix per SDG	Sensitivity

Notes:

* SDG - Sample Delivery Group - Assumes a single extraction or preparation

** Provided to lab by field sampling personnel

Table 2. Proposed Groundwater, Sub-slab Soil Vapor and Indoor/Ambient Air Sampling Locations

Monitoring Point Location	Matrix	Sample Depth*	Sample Parameters	Sampling Method**	Rationale
PRMW-1	Groundwater	± 8-19	VOC, SVOCs and RCRA Metals	SW-846 8260B; SW-846 8270C; 6010D	Baseline groundwater quality following remediation
PRMW-2	Groundwater	± 8-19	VOC, SVOCs and RCRA Metals	SW-846 8260B; SW-846 8270C; 6010D	Baseline groundwater quality following remediation
PRMW-3	Groundwater	± 8-19	VOC, SVOCs and RCRA Metals	SW-846 8260B; SW-846 8270C; 6010D	Baseline groundwater quality following remediation
PRMW-4	Groundwater	± 8-19	VOC, SVOCs and RCRA Metals	SW-846 8260B; SW-846 8270C; 6010D	Baseline groundwater quality following remediation

* Approximate water column, Feet below grade

** Laboratory will report to their minimum possible standards for each method (SMP Appendix I)

VOCs - Volatile Organic Compounds

SVOCs - Semivolatile Organic

QA/QC samples will be collected as described in the QAPP (Appendix F)

Table 3. Preservation, Holding Times, and Sample Containers
Quality Assurance Project Plan
714 East 241st Street
New York, New York
Site No. C203077

Analysis	Method	Matrix	Bottle Type	Preservation (a)	Holding Time (b)
TCL VOCs	EPA 8260C	Groundwater	40mL voa vial, teflon lined cap	Cool to 4°C	14 days from sample collection
TCL SVOCs	EPA 8270D	Groundwater	1 liter amber glass, teflon lined cap	Cool to 4°C	14 days to extract, 40 days to analysis 7 days to extract, 40 days to analysis
RCRA Metals	EPA 6010D	Groundwater	500 mL plastic, HNO3	Cool to 4°C	180 days from sample collection

Notes:
(a) All soil samples to be preserved in ice during collection and transport
(b) Days from date of sample collection.
VOCs - Volatile Organic Compounds
SVOCs - Semivolatile Organic Compounds
TCL - Target Compound List

Attachment 1
SOPs

STANDARD OPERATING PROCEDURE

AR-006 Air Sampling for Volatile Organic Compounds (VOCs) using Summa Canisters

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1. Objective

Describe standard procedures for the collection of ambient air samples to be analyzed for volatile organic compounds (VOCs) using Summa canisters. Typically, U.S. EPA Method TO-15 is used for laboratory analysis. The site-specific Work Plan should be consulted for proposed sample locations and sampling duration.

2. Materials

- Sampling canister
- Flow controller
- Vacuum gauge
- Wrench for removing fittings and assembling the sample train
- Data sheets for recording the sampling location, date, duration, starting and stopping times, and calculated sample volume
- Camera and measuring tape
- Weather station data
- PID

3. Sampling

This section details the sampling methodology and the media preparation by the analytical laboratory.

3.1. Sampling Equipment Overview

- The laboratory prepares the canister for sampling by cleaning and then evacuating the contents to a vacuum of approximately 29.9 inches of Mercury (in. Hg). Opening the stainless steel bellows valve allows the air sample to enter the canister. When the target volume of sample is collected, close the valve and return the canister to the laboratory.
- A flow controller is used as part of the sample train to control the amount of air allowed to flow into the container over time. Flow controllers are typically set to a flow rate that collects a sample continuously over a 1-hour (hr), 8-hr, or 24-hr interval. The sampling duration needs to be communicated to the laboratory prior to sampling, so that the laboratory can provide the appropriate flow controller.
- Summa canisters are typically used and named after the “Summa” process which describes the electro polishing of the interior surface of the canister to prepare it for sampling.
- The holding time for a standard VOCs list of EPA Method TO-15 is 30 days after sample collection, although some projects may require a shorter hold time.

3.2. Document Field Conditions

Document pertinent field conditions prior to sample collection:

- Record weather information, if available (such as precipitation, temperature, barometric pressure, relative humidity, wind speed, and wind direction) at the beginning of the sampling event. Record substantial changes to these conditions that may occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport). Data should be obtained for at least the past 12 hours.
- Sketch the site, area streets, neighboring commercial or industrial facilities (with estimated distance to the site), outdoor air sampling locations (if applicable), and compass orientation (North).
- Record pertinent observations, such as odors and readings from field instrumentation.

3.3. Sample Collection

- Collect samples in a clean Summa canister (or equivalent) using a flow controller calibrated for the anticipated sample duration (e.g. 8-hour, 24-hour, etc.). The flow controller flow rate should not exceed 0.2 liters per minute.
- Verify the initial vacuum of the canister using the vacuum gauge. If the canister vacuum is less than 25 in. Hg, do not use it. The procedure to verify the initial pressure is simple, and a missed step can compromise the validity of the sample media.
    - i. Confirm the canister’s bellows valve is closed by turning the knob clockwise to tighten.
    - ii. Remove the brass cap from the canister inlet.
    - iii. Attach the vacuum gauge.
    - iv. Open and close the bellows valve quickly (a few seconds).
    - v. Read and record the vacuum on the gauge as ‘Initial vacuum’ on the chain-of-custody (COC).
    - vi. Confirm the bellows valve is closed by turning the knob clockwise to tighten.
    - vii. Remove the vacuum gauge and replace the brass cap.
- <u>Begin Sampling</u>
    - i. Confirm the bellows valve is open by turning the knob counter-clockwise to loosen.
    - ii. Remove the brass cap.
    - iii. Attach the flow controller.
    - iv. Attach a “J”-shaped sampling cane to prevent precipitation from entering the canister.
    - v. Place the canister at the sampling location open the bellows valve. If the sample is collected from breathing height (e.g., 3 to 5 feet above ground), then mount the canister on a stable platform such that the sample inlet should be at the proper height.

   vi. Record the start date and time on the COC.
   vii. Record the identification numbers for the canister and flow controller and the vacuum gage.

- <u>Begin Sampling (with a field duplicate)</u>
   i. Confirm the bellows valve is closed by turning the knob clockwise to loosen on both canisters.
   ii. Remove the brass cap from both canisters.
   iii. Attach a flow controller on both canisters.
   iv. Attached a “T”-shaped sample train designed for field duplicates to both canisters.
   v. Attach a “J”-shaped sampling cane to the common end of the sampling “T” to limit precipitation entering the canisters.
   vi. Place the attached primary and duplicate canisters at the sampling location open the bellows valve. If the sample is collected from breathing height (e.g., 3 to 5 feet above ground), then mount the canister on a stable platform such that the sample inlet should be at the proper height.
   vii. Record the start date and time on the COC.
- <u>Monitoring Sample progress</u>
   i. At regular intervals, record the vacuum on the flow controller to confirm that the vacuum is decreasing in the canister. If the vacuum reads 5 in. Hg or less the bellows valve should be closed and the sample interval ended.
   ii. Some residual vacuum is important to maintaining sample integrity. If there is no vacuum remaining, call the laboratory and discuss the sample viability with them. Evaluate whether another sample will be taken after sharing the laboratory’s opinion with your project manager.
- <u>End Sampling</u>
   i. Sampling will end when the time interval (e.g., 8-hr period) is completed, or when the canister vacuum reads 5 in. Hg or less.
   ii. Close the bellow valve by turning the knob clockwise to tighten.
   iii. Remove the “J”-shaped sampling cane.
   iv. Remove the flow controller.
   v. Attach the vacuum gauge.
   vi. Open and close the bellows valve quickly (a few seconds).
   vii. Read and record the vacuum on the gauge as ‘Final vacuum’ on the chain-of-custody (COC).
   viii. Confirm the bellows valve is closed by turning the knob clockwise to tighten.
   ix. Remove the vacuum gauge and replace the brass cap.
- <u>Sample Transport</u>
   i. Return the canister, flow controller, and sampling cane to the laboratory in the boxes provided.
   ii. Fill out the COC and relinquish samples properly with flow controller and canister numbers on the COC.

iii. Place the COC in the box and retain a copy of the COC for your records.
iv. Tape the box shut.
v. Deliver or ship the samples to the laboratory as soon as practical to adequately meet the holding time of the sample.

4. General Guidance

- This method may be modified for indoor air sampling.
- Field Blank: Do not collect a field blank.
- Trip Blank: Do not collect a trip blank. The canister is prepared for sampling by evacuating the contents to a vacuum of, so no air exists for a trip blank to provide meaningful information.

5. References

Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition, Compendium Method TO-15, Determination of Volatile Organic Compounds (VOCs) in Air Collected In Specially-Prepared Canisters And Analyzed By Gas Chromatography/ Mass Spectrometry (GC/MS), US Environmental Protection Agency, Office of Research and Development, Center for Environmental Research Information, Cincinnati, OH, EPA/625/R-96/010b, January 1999.

Guide To Air Sampling & Analysis, Air Toxics, Ltd., Folsom, CA.

6. Contacts

Brian Skelly
Mark C. Ensign

STANDARD OPERATING PROCEDURE

DM-002 Hollow-Stem Auger

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1. Objective

Describe standard operating procedures for drilling of overburden soil borings using hollow-stem augers.

2. Execution

- Confirm that the appropriate measures have been taken for clearance of potential subsurface utilities. The responsibility for clearance may vary, depending on the client.
- Inspect the drilling rig to make sure it is clean and that the down-hole equipment has been steam-cleaned or pressure-washed. Record observations in the field notebook (See SOP FD-001).
- Observe that the augers are vertical when the first section is advanced into the ground.
- Use a 140-lb hammer to drive the sampler, unless conditions necessitate using a 300-lb hammer (see SOPs SM-001, *Split-Spoon Sampling* and SM-0003, *Soil Classification,* for details). Count and record the number of blows per 6-inch increments, confirming blow counts with driller if necessary).
- Decontaminate the split-spoon sampler after each use (see *Equipment Decontamination,* SOP QA-001) or use another decontaminated split-spoon sampler.
- Ensure that the drillers advance the augers only after they have inserted the auger plug (to prevent soil from entering the augers while advancing to the next sample interval).
- Request that the drillers remove the auger cutting bit/plug and insert the split-spoon sampler into the interior of the augers. Measure the stick-up of the rods attached to the sampler to ensure that the nose of the spoon is in virgin soil below the augers.
- Watch for signs of a soil strata change at depth during drilling (i.e., change in blow counts, change in soil color, soil wetness, soil contamination, bouncing of the drill rig, etc.). If important to the investigation, stop drilling and collect a soil sample.
- If subsurface soil samples are being collected with split-spoon samplers, ensure that the drillers use a 30-inch drop of the 140-pound hammer. The number of blow-counts for each 0.5 foot penetration provides important geotechnical data.
- Repeat until the borehole has been drilled to the desired depth.
- If a monitoring well is not installed in the soil boring, fill the boring with either cement/bentonite grout or properly-tamped and hydrated bentonite. Check with Project Manager and/or the appropriate regulatory personnel before using drill cuttings to backfill the boring.

- If a monitoring well will be installed, refer to SOP DM-007.
- Complete boring log and, if necessary, well installation logs (SOP SM-003, *Soil Classification*).
- Record boring locations on a site map and in a field notebook sketch. If the boring location will not be surveyed, measure each location from on-site reference points and record the information in the field notebook so that the location can be plotted on site figures.

3. Limitations

- In areas of significant soil contamination, hollow-stem augers may cross-contaminate upper soil layers as contaminated cuttings move up the auger flights. The potential also exists for contaminated augers to carry contamination to deeper soil strata
- If significant unanticipated contamination is encountered during drilling, stop drilling to confer with the project manager and evaluate health and safety conditions. If the borehole is to be advanced below the contaminated strata, use telescoping techniques (see SOP DM-008 *Monitoring Well Telescoping Techniques*) to avoid cross-contaminating underlying geologic strata.
- When drilling below the groundwater table in fine to medium sands, the potential exists for the phenomenon of “running sands” or “blow in” to occur. Frequent measurements inside the hollow-stem augers after the drill bit/plug is removed will indicate if running sands are present. If sands start to flow into the auger, pour clean water into the augers and keep the augers filled during sampling.
- If necessary, arrange for the storage of contaminated soil cuttings and water in drums or other appropriate containers in a secure place at the site. Containers should be labeled.
- Plan the drilling program to drill borings from the least- to most-contaminated areas. Be prepared in advance and know where alternative drilling locations are in the event that problems are encountered at each planned soil boring location. Alternative locations will need to have utility clearance.
- Down-hole drilling equipment should be steam cleaned or pressure-washed between holes unless otherwise directed by the project manager.
- Record when standard operating procedures are deviated from. The drilling inspector should also record any detected odor from the boring and depth encountered.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90

Nielsen, D.M. (1993), “Correct Well Design Improves Monitoring,” Environmental Protection, July, pp. 38-49

Standard References for Monitoring Wells (April 1991), Commonwealth of Massachusetts Department of Environmental Protection, WSC-310-91

5. Attachments

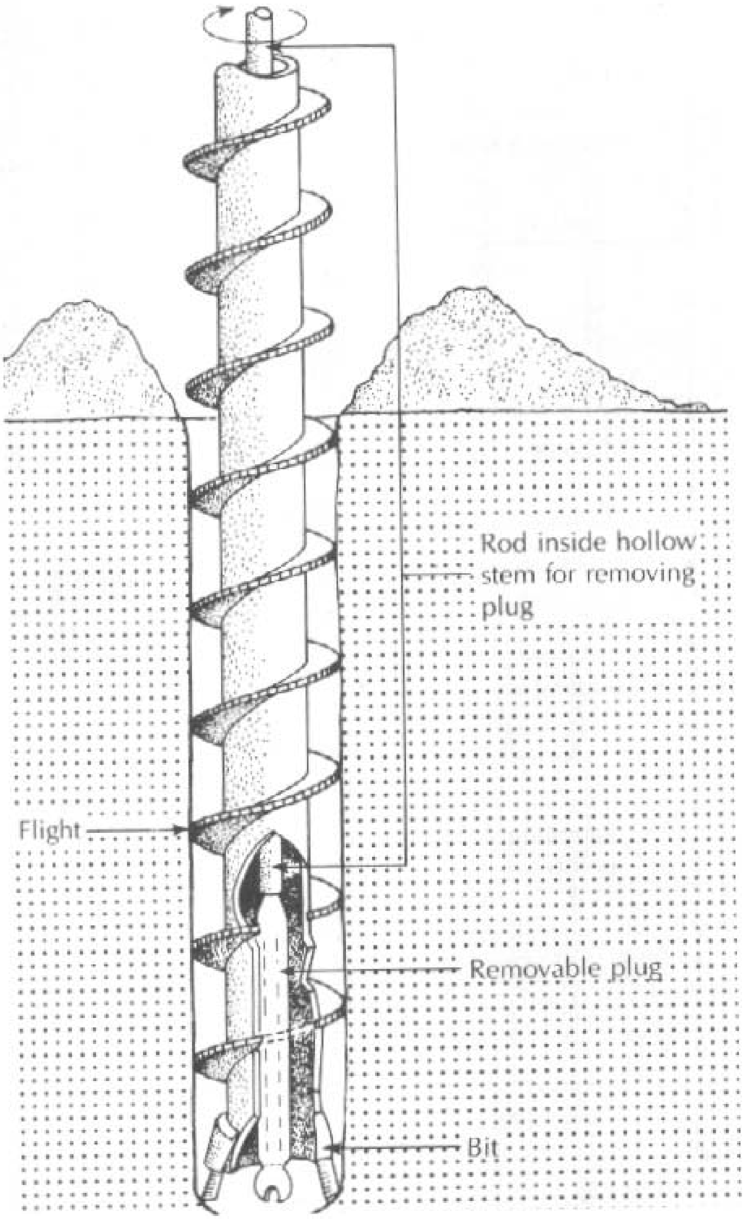
Attachment A – Hollow-Stem Auger

6. Contact

Gary Fuerstenberg
Cathy Johnson

SOP DM-002

Attachment A – Hollow Stem Auger



STANDARD OPERATING PROCEDURE

DM-007 Monitoring Well Construction and Installation

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1. Objective

Describe installation procedures for overburden monitoring wells screened across or below the groundwater table.

Well dimensions (well diameter, screen length, and screen slot-diameters) will be specified in the Work Plan. This SOP assumes the monitoring wells will be constructed of flush-joint PVC pipe and the screened section will have factory-slotted openings.

2. Execution

Attachment A provides a diagram of typical shallow, intermediate, and deep groundwater monitoring well construction detail. A Groundwater Monitoring Well Installation Log is in Attachment B.

- Measure and record the depth of the completed soil boring before beginning the well installation.
- If possible, measure the depth to groundwater in the borehole over a 10 to 15 minute period to ensure that the groundwater elevation has approximately stabilized. Compare the saturated soil depth estimated from split-spoon samples to the measured water level in the borehole. If drilling water has been used during boring advancement, pump the water out of the borehole to the static water depth, based on examination of the soil samples, and monitor the recovery of groundwater until the level has stabilized.
- If it is not possible to accurately measure the depth to groundwater in the borehole due to low permeability in the formation, use the saturated soil depth observed in the collected samples or measured water depth in a nearby existing monitoring well to estimate the depth to water in the borehole.
- For shallow monitoring wells, select the monitoring well screen and riser lengths so that the slotted section of the screen intersects the groundwater table. Screen lengths of 15 feet or less are preferred and 10 foot screens are most common. If the water table is seasonally high or low or if the well is in a location where the water table is likely to be tidally influenced, appropriately place the screened section to allow for the screen to intersect likely future water tables.
- For intermediate or deep wells screened entirely below the water table, select the monitoring well screen and riser lengths as described in the Work Plan. Screen lengths of 10 feet or less are preferred.
- If the borehole is deeper than the desired well depth or the bottom of the well is close to a change in soil strata, then fill the base of the borehole with bentonite. Keep in mind that bentonite swells when hydrated, and that filter

sand should be placed at the bottom of the borehole above the bentonite before installing the well.

- Prevent well materials from contacting foreign substances during installation. Precautions may include requiring the driller to wear clean gloves while handling well materials and requiring that well materials not be placed onto the ground or pavement without a protective barrier such as polyethylene sheeting being present
- Confirm that the driller installs a minimum one-inch sump with a bottom cap to the bottom of the well screen. See the Work Plan for locations that may require larger sumps.
- Monitoring wells can be constructed of either 1, 1.5, 2 or 4 inch inner diameter (ID) Schedule 40 threaded flush-jointed PVC. Refer to the work plan for the site-specific requirements. Flush-threaded well materials should be used. Do not allow the driller to use glues, as they typically contain solvents that could affect on groundwater quality.
- Stainless steel well materials may be used if required in the Work Plan. Select slot size based on grain size of the formation and on requirements in the Work Plan.
- Confirm that the driller places at least 12 inches of clean uniformly graded medium quartz filter sand pack into the base of the borehole, if required in the Work Plan.
- The driller should remove the drilling casing/augers from the borehole slowly, at a maximum of 2-foot intervals, at the same time that filter sand is added. The drillers should take frequent measurements of the depth to sand.
- Confirm that the driller has added adequate sand to surround the area around the slotted section. The filter sand should extend at least 2 feet above the top of the slotted section.
- The driller should place a bentonite seal above the filter pack. If the seal is above the water table, use at least 5-gallons of potable water to hydrate the bentonite before grouting the remaining annular space, or otherwise backfilling the remaining annular space as discussed with the Project Manager. Tamp seal. It should extend 1 to 2 feet above the filter sand.
- If required by the Work Plan, the driller should use bentonite-cement and grout the annular space from the top of the bentonite seal to the ground surface. Bentonite cement grout should be placed using tremie methods. Grout should be mixed in approximately the following proportions: 7.5 gallons water to one 94-lb bag of cement to 2-4 lbs of pulverized bentonite. The grout must be mixed using a pump (such as one on the rig) to ensure proper mixing.
- The drillers should cut the monitoring well riser at an angle or make "V"-notch in the riser pipe as a benchmark for surveying and groundwater measurements. The driller should cut the well riser so that the top of the well will be approximately 3 inches below the top of protective casing. The top of

the riser should be close enough to the top of the surface casing to allow reading of depth markings on a water level indicator tape.

- The protective surface casing is either a flush-mounted roadbox or a steel "stick up" pipe. The base of either type of casing should extend at least 1 foot into the grout below the ground surface (below the frost line) whenever possible.
- The protective casing should be set by placing cement in the annular space between the protective casing and the borehole up to the ground surface. If possible, the driller should slope the cement radially away from the protective casing at the ground surface to promote surface water runoff.
- In areas of high traffic or areas of parking lots and/or roadways where plowing occurs, set the roadbox flush with the ground surface to avoid damage to the well.
- If the well is installed in a high-traffic area and is completed with a steel "stick up" pipe, additional protection such as steel pole bumpers around the steel "stick up" pipe may be necessary.
- If possible a locking cap should be placed on the steel "stick up" pipe. If the surface casing is flush mounted, a locking expansion plug should be placed, if possible, inside the top of the well riser pipe.
- All well locations should be photodocumented in accordance with SOP FD-004 Photodocumentation.
- Label the outside of the protective well casing with a paint pen. If the well is not going to be surveyed, measure the location to nearby landmarks so that the well may be located in the future and plotted on figures. Make sure to enter this information in the field notebook). If possible, place a brightly colored stake or other identifier adjacent to the well.
- Develop the well (see SOP DM-009, *Monitoring Well Development*).

3. Limitations

- Do not screen across different hydrostratigraphic units (for example, outwash sands, confining layers or till) unless specified in the Work Plan or approved by the Project Manager.

- If the formation is composed of a material that is uniformly coarser than the filter sand, the grain size of the filter sand should be increased. Consideration should also be given to changing the slot size on the well screen. Differences in average grain size should generally not be greater than a factor of two to four times.

- Do not use drill cuttings to backfill during monitoring well installation unless specified by the work plan or project manager.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90

Nielsen, D.M. (1993), "Correct Well Design Improves Monitoring," Environmental Protection, July, pp. 38-49

Standard References for Monitoring Wells (April 1991), Commonwealth of Massachusetts Department of Environmental Protection, WSC-310-91.

5. Attachments

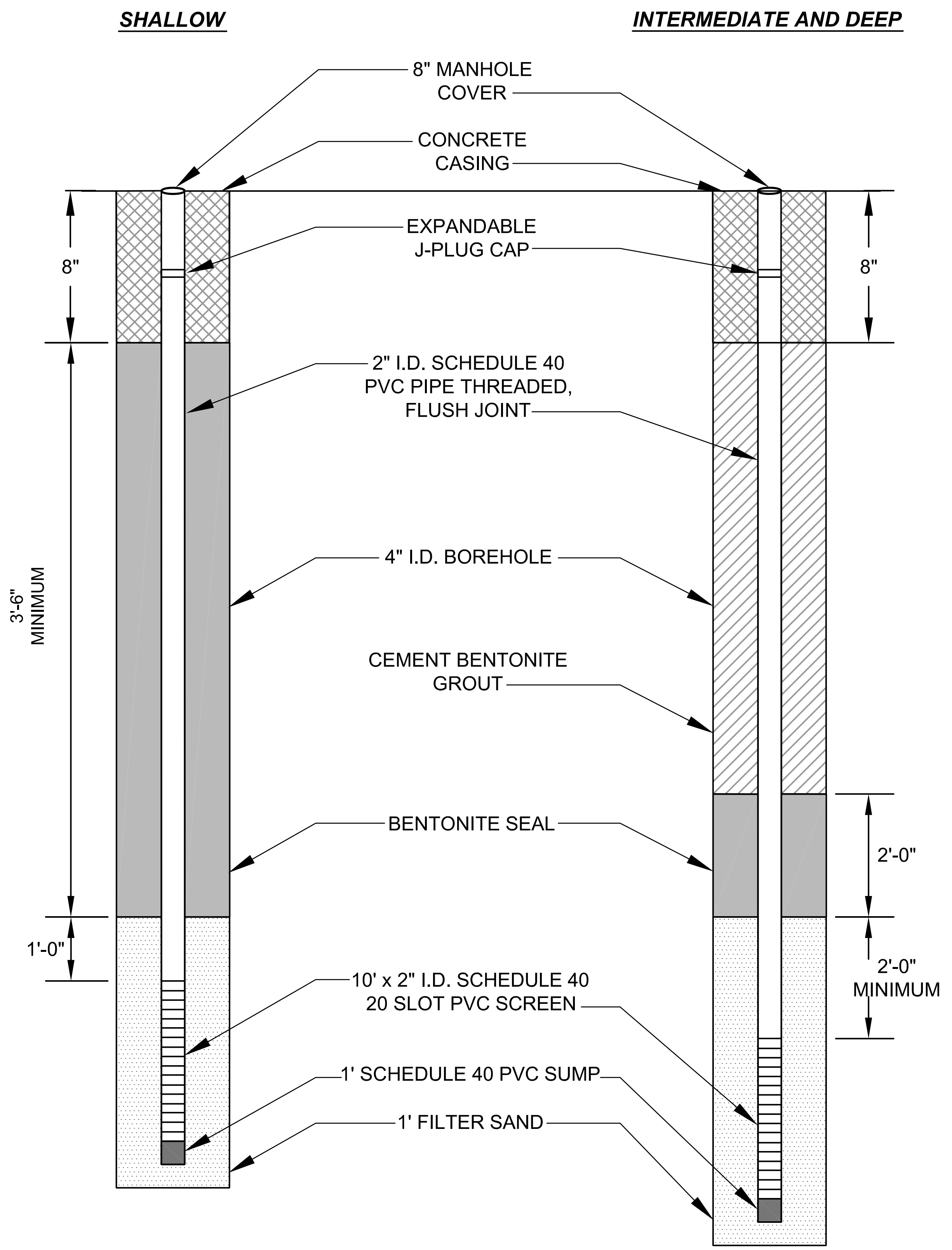
Attachment A – Typical Shallow, Intermediate, and Deep Groundwater Monitoring Well Construction Detail

Attachment B – Groundwater Monitoring Well Installation Log

6. Contact

David Terry
Anne Leifer

Attachment A - Well Detail



NOT TO SCALE

GEI Consultants

TYPICAL SHALLOW,
INTERMEDIATE AND DEEP
GROUNDWATER MONITORING
WELL CONSTRUCTION DETAIL

June 2008

I:\GEI\SOPs\ Well Detail.dwg \Jun 10, 2008

Attachment B - Groundwater Monitoring Well Installation Log

Groundwater Well Installation Log

Well ID

Project

City / Town

Client

Contractor

Driller **GEI Rep.**

GEI Proj. No.

Location

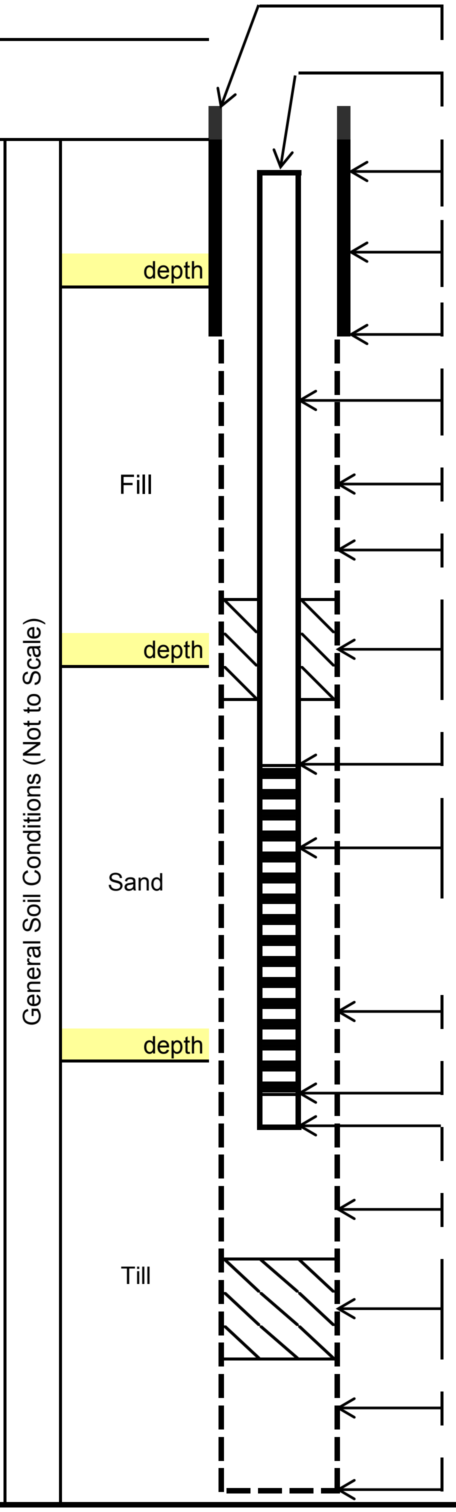
N

E

Install Date

Survey Datum:

Ground Elevation:



Date	Time	Distance to ▼ below top of riser pipe

Length of Surface Casing above Ground

Dist. Top of Surf. Casing to Top of Riser Pipe

Type and Thickness of Seal around Surface Casing

ID of Surface Casing

Type of Surface Casing

Depth Bottom of Surface Casing

ID and OD of Riser Pipe

Type of Riser Pipe

Type of Backfill around Riser Pipe

Diameter of Borehole

Depth Top of Seal

Type of Seal

Depth Bottom of Seal

Depth Top of Screened Section

Type of Screen

Description of Screen Openings

ID and OD of Screened Section

Type of Filter Material

Depth Bottom of Screened Section

Depth Bottom of Silt Trap

Depth Bottom of Filter Material

Depth Top of Seal

Type of Seal

Depth Bottom of Seal

Type of Backfill below Filter Material

Bottom of Borehole

Notes:

GEI Consultants

STANDARD OPERATING PROCEDURE

DM-009 Monitoring Well Development

---

1. Objective

Describe standard procedures to remove fluids from monitoring wells (introduced during drilling) and maximize the movement of groundwater into the well by removing fine particles in the well and sand pack around the screen.

2. Execution

To prevent cross contamination between monitoring wells, use dedicated equipment and/or appropriately decontaminated equipment to perform monitoring well development. See SOP QA-001 Equipment Decontamination and the Work Plan for more information.

For deep or large diameter monitoring wells, it may be necessary to use a re-usable pump system, such as a Grundfos pump, to develop monitoring wells.

- Calculate the volume of water in the monitoring well (one well volume) using the following table:

Well diameter (inches)	Volume (gal/ft)
1	0.04
1.5	0.09
2	0.16
3	0.36
4	0.65
6	1.50

  The equation used to establish these volumes is presented in Section 4.

- Calculate or estimate the amount of water introduced to the borehole during drilling. At a minimum, this is the amount of water that should be removed during development. Removing less water than was introduced and allowing additional time for the surrounding formation to clear of injected drilling fluids may be considered as an alternative if the volume of introduced water was large.

- Record the volume of water purged in the field notebook or on the Monitoring Well Sampling Form (Attachment A).

- Collect a sample of water from the monitoring well with the selected submersible pump (e.g. 12-volt whale pump or Grundfos pump), a bailer, or a

Waterra system. Record the physical properties (color, turbidity, odors, etc.) of the sample.

- The volume of water that should be removed will depend on the work plan, local regulatory guidance, and/or the volume of water that was introduced during drilling and well installation. Typical guidance for the removal volume includes:
    - Ten well volumes.
    - The volume of fluid added during drilling.
    - The volume required to remove enough suspended particles so that the turbidity of the water is less than 50 nephelometric turbidity units.

If needed, pump the ground water into a 5-gallon pail so that the volumetric flow rate and total water volume from the pump or bailer can be calculated.

Measure the groundwater level in the well during development to assess if the pumping rate is sufficient to create a drawdown in the well.

Observe the groundwater every few well volumes during the pumping and record the physical properties (color and turbidity).

If required by the Work Plan, conduct surging in the monitoring well. See the Work Plan for the method of well surging to be used. If surging is necessary, do so only after initial pumping at the well has occurred and fine sediments have been removed.

Slowly move the surge block up and down in the well. Periodically remove the surge block and purge the groundwater until it is relatively clear again. Start at a slow pace and progress to a faster surging action through time.

3. Limitations

Always remove groundwater with fine particles from the well before surging. The fine particles may be forced into the well screen by the surging action. They may also damage the pump.

If the ground water in the monitoring well is contaminated, the water removed during well development may need to be placed in a properly-labeled drum and disposed of in accordance with local, state, and federal regulations (see SC-003 Investigation Derived Waste).

If the soils around the well screen are composed of fine-grained silts and clays, over-pumping and mechanical surging is not recommended since these more vigorous techniques can cause mixing of the fines into the filter pack. To develop these wells, use of a bailer is recommended.

There are occasions when the turbidity of groundwater cannot be meaningfully reduced. On these occasions, a minimum of ten volumes should be removed, and the Project manager should be consulted.

Sampling of groundwater should generally not occur within one week after development. In some regions or regulatory jurisdictions, a minimum of two weeks may be required before sampling. If no water was introduced to the formation during drilling, this waiting period may be shortened if required by the project. See the Work Plan for additional information.

4. References

Standard Practice for Design and Installation of Ground Water Monitoring Wells in Aquifers (October 1990), American Society for Testing and Materials [ASTM] D5092-90.

Nielsen, D.M. (1993), "Correct Well Design Improves Monitoring," Environmental Protection, July, pp. 38-49.

"The Methods & Mechanics of Well Development, Part 2 of 5," National Drillers Buyers Guide, March 1993, p. 17.

Massachusetts Department of Environmental Protection, "WSC-310-91Standard References for Monitoring Wells, Section 4.5 Decommissioning of Monitoring Wells", January 1991
.

U. S. EPA Environmental Response Team Standard Operating Procedure SOP: 2044 ," Monitor Well Development" REV: 0.1, 10/23/01

5. Attachments

Attachment A - Monitoring Well Sampling Form

6. Contact

Gary Fuerstenberg
Anne Leifer

GEI Consultants

MONITORING WELL SAMPLING RECORD

PID Reading ____________________ Job Name ____

Job Number ____________________ By ____________________ Date _________________

Location ____________________ Measurement Datum ______________________________

Well Number ____________________

Pre-Development Information Time (start) ______________________________

Water Level ____________________ Total Depth of Well ______________________________

One Purge Vol ____________________ Three Well Volume ______________________________

Water Characteristics

Color ____________________ ________ Clear _____ Cloudy

Odor _____ None _____ Weak ________ Moderate _____ Strong

Any films or immiscible material ____

Volume (gal)	Time	pH	Temp (°C)	Spec. Conductance (µS/cm)	Turbidity (NTU)	DO Conc. (mg/L)	ORP (mV)	TDS

Total Volume Removed (gal) _______________ pH _____________

Temperature (°C) _______________ Specific Conductance (µS/cm) _____________

DO Concentration (mg/L) _______________ ORP (mV) _____________

TDS _____________

Post Development Information Time (Finished) _____________

Water Level _______________ Total Depth of Well _____________

Approximate Volume Removed (gal) ___________________________________

Water Characteristics

Color _________________________ _____ Clear ______ Cloudy

Odor ______ None _____ Weak _____ Moderate ______ Strong

Any films or immiscible material ____

Comments

STANDARD OPERATING PROCEDURE

FD-003 Sample Management and Chain of Custody

---

1. Objective

Describe methods to label sample containers, manage the samples, and prepare Chain of Custody documentation for the samples. Sample transport is also addressed.

2. Project Setup

When setting up a sampling event, inform the recipients of the samples (laboratories) and recipients of laboratory results (data group and project managers). Discuss with the laboratory the sampling media, turnaround times, and reporting limits for appropriate regulatory criteria for the site. Include the data group on correspondence so that turnaround times, data validation, and project deliverable schedules can be tracked successfully.

- Laboratory - Number of samples, analyses needed: bottle orders and holding times, turnaround times needed, reporting limits needed for regulatory criteria.
- Data group - Number of samples, analyses requested, turnaround times and reporting limits requested, data validation needed, regulatory criteria to use for tabulating results, deliverables needed, and project name and number.
- Schedule - Inform the laboratory and Data Group of schedule delays, changes to analyses, and expediting.

3. Sampling Execution

- Review the work plan prior to sampling to determine the following:
    - Sample matrix and sampling method.
    - Required analysis and sample volumes.
    - Sample container type and preservative requirements.
    - Required analysis methods and/or report formats.
    - The turnaround time required by the project.
    - If the data will be sent directly from the laboratory to the data validator, Project Manager, or Data Group.
    - Holding time restrictions for sampling media and analytical methods.
    - Sample naming convention used for this project site.
- Sample labels should be filled out using a waterproof or permanent marker or pen. Required information includes:
    - Sample ID.
    - Date and time (military time) of sample collection.
    - Project number.
    - Sample preservatives.
    - Sampler’s initials.
    - Laboratory analytical methods.

- Place the label on the jar or bottle, not on the cap. Sample custody begins at this time.
- Record the above information in the field notebook.
- Individually wrap sample jars with packing material, if needed. See SOP SC-002 for guidance on packaging samples for shipment to the laboratory by way of common carrier. Place samples in a cooler with bagged ice or freezer packs (blue ice) immediately after collection. Add sufficient ice or freezer packs to cool samples to approximately 4°C.
- Complete a chain of custody (COC) for the samples as described below. GEI or laboratory COCs may be used as long as they contain fields for all required sample information as described in Section 2.1.

3.1. Chain-of-Custody (COC) Completion

- Fill out COC neatly and in permanent ink. Alternatively, an Excel version of the GEI COC is available and can be filled out electronically.
- Certain analyses (i.e. air analysis by TO-15) require specialized, laboratory issued COCs. Make sure any specialized COCs are available before sample collection.
- Record the project name and number, the sampler's name(s) and the state where the samples were collected.
- For each sample, enter the sample identification number, date and time (military time) collected, the number of sample containers, and any additional information to fulfill project, client or regulatory requirements.
- Record the type of analysis (including laboratory method; e.g. EPA-SW846 Method XX) requested and the preservative (if appropriate) in the vertical boxes.
- Field duplicates should be anonymous to the laboratory, but must be recorded for use by the Data Group. To keep track of this information, link the field duplicate with the proper sample in the field notebook. If required by the Project Manager or Data Group, also document this information on or attach a note to the GEI copy of the COC.
- Trip blanks for large sites should be named similar to the samples they are collected with so that there are not two of the same sample name for the same site. For example, "OU1TB-122509" and "OU3TB-122509" would avoid any mistakes.
- Strike incorrect entries on the COC with a single line, followed by the initials of the person making the correction, the date, and the correct entry.
- When sample custody is ready to be relinquished, complete the bottom of the form with date and time (military time) and signatures of relinquisher and receiver of samples as indicated. The sample collector is always the first signature while the analytical laboratory is the final signature. Theoretically, all individuals handling the samples between collection and laboratory should sign the form; however, if a common carrier (i.e., Federal Express, UPS) is used for shipping, GEI must identify the carrier in the 'Received by' box on the

COC. If the sampler hand delivers the samples to the laboratory, the received box must be signed by the laboratory.

- If the samples are placed in a designated secure area (e.g. GEI sample fridge), note this location in the "Received by" box on the COC.
- GEI uses both single sheet and triplicate COCs. If using the triplicate COCs (white, yellow, and pink copies), the pink copy should be retained by the sampling personnel and provided to the Data Group for proper filing. The white and yellow copies should accompany the samples to the laboratory.
- If you are using the single sheet COC, make a copy of the COC after it has been signed by the lab courier and forward it to the Data Group.
- Prior to sample shipment by common carrier, the COC must be placed inside the cooler in a Ziplock bag or other watertight package.
- If a common carrier such as FedEx is used to transport the samples to the laboratory, include the carrier tracking number and identify the carrier in the "Received by" box on the COC.
- If a courier is used to transport samples to the laboratory (lab courier or GEI personnel), the courier signs the COC in the "Received by" box.
- Place a custody seal on the cooler if shipping via common carrier.
- Transport samples to the laboratory as soon as possible. It is preferable to transport the samples directly to the laboratory from the field. Samples brought back to the office for storage prior to submission to the laboratory must be kept cold (4° C).
- Unused sampling containers/media that are sent back to the lab should be included on a separate COC.
- After the samples are sent to the laboratory, the GEI copy of the COC must be forwarded to the Data Group: datagroup@geiconsultants.com.

4. Limitations

- Keep the number of people involved in handling samples to a minimum.
- Where practical, only allow people associated with the project to handle the samples.
- Always document the transfer of samples from one person to another on the COC.
- The COC should always accompany the samples.
- Give samples positive identification at all times that is legible and written with waterproof or permanent ink.
- When sending samples via a common carrier, use one COC per package.
- Where practical, avoid sending samples from more than one site with separate COCs in a single package.

5. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

Connecticut Department of Environmental Protection, Guidance for Collecting and Preserving Soil and Sediment Samples for Laboratory

6. Attachments

Attachment A - Example Chains of Custody
Attachment B - Shipping Info Pics

7. Contact

Brian Skelly
Leslie Lombardo

Chain of Custody Record

STL-4124 (0901)

STL Connecticut
128 Long Hill Cross Road
Shelton, CT 06484
Tel: 203-929-8140

Example
COC

SEVERN TRENT **STL**
Severn Trent Laboratories, Inc.

Client: GEI

Address: 455 Winding Brook Dr

City: Glastonbury State: CT Zip Code: 06033

Project Name and Location (State): Carroll Gardens NY

Contract/Purchase Order/Quote No.:

Project Manager: Dave Terry

Telephone Number (Area Code)/Fax Number: 860 368 5300 / 860 368 5307

Site Contact: M. Felter

Lab Contact: Paul Hobart

Carrier/Waybill Number: FedEx 9383 7603 0879

Date: 12-31-07

Chain of Custody Number: 00452

Lab Number:

Page 1 of 1

Analysis (Attach list if more space is needed)

Sample I.D. No. and Description (Containers for each sample may be combined on one line)	Date	Time	Matrix: Air	Aqueous	Sed.	Soil		Containers & Preservatives: Unpres.	H2SO4	HNO3	HCl	NaOH	ZnAc/NaOH		VOC 8260B	SVOC 8270C	TO-15 + NAPHTHALENE	Special Instructions/ Conditions of Receipt
CGSB-01 (0-2)	12-31-07	1130				X		X							X	X		
CGSB-02 (3-4)	12-31-07	1250				X		X							X	X		
CGSB-02 (3-4) MS	12-31-07	1250				X		X							X	X		
CGSB-02 (3-4) MSD	12-31-07	1250				X		X							X	X		
CGSB-XX (5-6)	12-31-07	0800				X		X							X	X		
CGTB-123107	12-31-07	1400					TB				X				X			
CGGW-01	12-31-07	1430		X				X			X				X	X		
CGSG-01	12-31-07	0700-1500	X														X	CANISTER# 2013 REGULATOR# 779

~~NEW JERSEY: "CLP data package deliverables"~~

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown

Sample Disposal
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ____ Months (A fee may be assessed if samples are retained longer than 1 month)

Turn Around Time Required
☐ 24 Hours ☐ 48 Hours ☐ 7 Days ☐ 14 Days ☐ 21 Days ☒ Other See contract

QC Requirements (Specify) NYS Cat B ASP deliverable Send EDD to datagroup@geiconsultants.com send to Lorie Mackinnon

1. Relinquished By: Melissa J Felter Date: 12-31-07 Time: 1600
1. Received By: FedEx WAYBILL 923117-4432 Date: 12-31-07 Time:
2. Relinquished By: Date: Time:
2. Received By: Date: Time:
3. Relinquished By: Date: Time:
3. Received By: Date: Time:

Comments
USED FLOW CONTROLLER FOR AIR SAMPLE INCLUDED

RIBUTION: WHITE - Returned to Client with Report; CANARY - Stays with the Sample; PINK - Field Copy

EXAMPLE COC

Chain-of-Custody Record

Chain-of-Custody Record	**Laboratory: Accutest**	**Laboratory Job #** (Lab use only)

GEI Consultants
400 Unicorn Park Dr.
Woburn, MA 01801
PH: 781.721.4000
FX: 781.721.4073

Project Information

Project Name: MWRA - Low Service Storage Tank	Project Location: Stoneham, MA
Project Number: 093400	Project Manager: D. Aghjayan

Page _1_ of _1_

Send Report to: rseigener@geiconsultants.com

Send EDD to: labdata@geiconsultants.com

Sample Handling

Samples Field Filtered
YES NO NA

Sampled Shipped With Ice
YES NO

MCP PRESUMPTIVE CERTAINTY REQUIRED – YES NO

If Yes, Are MCP Analytical Methods Required? YES NO NA
If Yes, Are Drinking Water Samples Submitted? YES NO NA
If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

							Preservative	None	MeOH	None	None	MeOH	None	None	None	
							Analysis									
Lab Sample Number	GEI Sample ID	Collection Date	Collection Time	Matrix	No. of Bottles	Sampler(s) Initials		PCBs	VPH Fractions Only	EPH Fractions Only	SVOCs	VOCs, % Solids**	Conductivity	RCRA 8 Metals*	TPH by GC/FID DRO	Sample Specific Remarks
	093400-LS6-S5(19'-21')	12/29/2009	9:30	SO	3	JMR			x			x				
	093400-LS6-COMP (FILL)	12/29/2009	9:30	SO	1	JMR		x		x	x		x	x	x	
	093400-LS6-COMP (NATIVE)	12/29/2009	15:00	SO	1	JMR		x		x	x		x	x	x	
	093400-LS8-COMP	12/29/2009	14:00	SO	1	JMR		x		x	x		x	x	x	
	093400-LS9-S4 (8'-8'-5")	12/30/2009	14:30	SO	3	JMR			x			x				
	093400-LS9-COMP	12/30/2009	15:00	SO	1	JMR		x		x	x		x	x	x	

MCP Level Needed: GEI requires the most stringent Method 1 MCP standard be met for all analytes whenever possible.

Relinquished by sampler: (signature)	Date:	Time:	Received by: (signature)
1. Joseph M.	12/30/09	16:30	1. GEI FRIDGE
Relinquished by: (signature) 2. GEI FRIDGE	1/4/10	1310	2. Naomi
Relinquished by: (signature) 3. Naomi	1/4/10	1310	3.
Relinquished by: (signature) 4.	Date:	Time	Received by: (signature) 4.

Turnaround Time (Business days):

Normal __X__ Other ____
10-Day ____ 7-Day ____
5-Day ____ 3-Day ____

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

Please use MA Landfill List

* Please run TCLP analysis for RCRA 8 Metals results that exceed the 20 times rule.

** Please use % solids sample for VOC and VPH analysis of 093400-LS6-COMP (FILL), 093400-LS6-COMP (NATIVE), 093400-LS8-COMP, and 093400-LS9-COMP

Chain-of-Custody Record

Laboratory:

Laboratory Job #
(Lab use only)

GEI Consultants

455 Winding Brook Drive, Suite 201
Glastonbury, CT 06033
PH: 860.368.5300
FX: 860.368.5307

Project Information

Project Name/Number:

Project Location:

Project Contact:

Phone Number:

Page __ of __

Send Report to:

Send EDD to: datagroup@geiconsultants.com

Preservative

Analysis

Sample Handling

Samples Field Filtered
YES NO NA

Samples Shipped With Ice
YES NO

Deliverables:

If Yes, Have You Met Minimum Field QC Requirements? YES NO NA

Lab Sample Number	**GEI Sample ID**	**Collection**		**Matrix**	**No. of Bottles**	**Sampler(s) Initials**										**Sample Specific Remarks**
		Date	**Time**													

Relinquished by sampler: (signature) 1.	Date :	Time:	Received by: (signature) 1.
Relinquished by: (signature) 2.	Date :	Time:	Received by: (signature) 2.
Relinquished by: (signature) 3.	Date :	Time:	Received by: (signature) 3.
Relinquished by: (signature) 4.	Date :	Time:	Received by: (signature) 4.

Turnaround Time (Business days):

Normal _____ **Other** _____
10-Day _____ **7-Day** _____
5-Day _____ **3-Day** _____

Before submitting rush turnaround samples, you **must** notify the laboratory to confirm that the TAT can be achieved.

Additional Requirements/Comments/Remarks:

PACKING SAMPLES FOR SHIPMENT BACK TO THE LABORATORY

A. Line cooler with bubble wrap and large plastic bag. Use absorbent pad inside the bag if bottles contain preservatives.

B. Wipe outside of bottles and put glass in individual bubble bags & seal. Place bottles & the temperature blank into cooler. Leave room for ice in between bottles & on top.

C. Place double bagged or loose ice randomly around bottles throughout the cooler.

D. Place large bag of ice or loose ice on top of the bottles. In warm weather, the cooler should be packed with as much ice as possible.

E. Close outer bag, compress excess air out of bag, twist top and knot. If necessary, use more bubble wrap to fill the dead air spaces. Place chain of custody (COC) and other paperwork in plastic bag and seal. Place on top of cooler.

F. Close cooler, place signed and dated Custody Seals over opening. Tape over the Custody Seal and seal cooler securely. Fill out overnight shipping waybill and attach to the top or handle of the cooler. Attach Saturday delivery stickers if needed. Ship according to DOT regulations.

PACKING SAMPLES FOR SHIPMENT BACK TO THE LABORATORY

A. Line cooler with bubble wrap and large plastic bag. Use absorbent pad inside the bag if bottles contain preservatives.

B. Wipe outside of bottles and put glass in individual bubble bags & seal. Place bottles & the temperature blank into cooler. Leave room for ice in between bottles & on top.

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F. Close cooler, place signed and dated Custody Seals over opening. Tape over the Custody Seal and seal cooler securely. Fill out overnight shipping waybill and attach to the top or handle of the cooler. Attach Saturday delivery stickers if needed. Ship according to DOT regulations.

Rev 011209

STANDARD OPERATING PROCEDURE

FD-004 Photo Documentation

---

1. Objective

Describe methods to document and retain photographic records.

Keeping a record of photographs taken is crucial to their validity as a representation of existing conditions.

2. Execution

- Photographs of a site, individual samples, or other observations should be taken using a digital camera.
- Set the camera to record the time and date for each photograph.
- All photographic records, along with the following information, should be recorded in the field notebook (SOP FD-001).
  - If applicable, the compass direction describing the direction the photograph was taken (e.g. looking southeast). This may not apply to photographs of individual samples.
  - Brief description of what the photograph is intended to show.
- The field notebook should note who took the photographs.
- The photographs should be electronically backed up on a computer or other data storage device.
- If photographs will be used in a report, memo, or letter, they should be placed on a photograph record template and the relevant information describing the photograph should be inserted into the caption section for each photograph.

3. Limitations

- Some clients and regulatory agencies require photographs of every subsurface soil sample collected. These photographs typically include a “whiteboard” which indicates the site, the boring ID, and the depth of the sample, while logging details are recorded in the field notebook. Under these circumstances, it is not necessary to include compass directions or descriptions.

4. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

5. Attachments

Attachment A – Example of Photo Documentation Template

6. Contact

Melissa Felter
Leslie Lombardo

Attachment A – Example of Photo Documentation Template

GEI Consultants, Inc.

Project: Project Name

Location: Project Location

Photographer: K. Barber
Date: 10/25/07
Photo No.: 1
Direction: N

Comments:
Entrance of site with tree mulching operations.

Photographer: K.Barber
Date: 10/25/07
Photo No.: 2
Direction: W

Comments:
On-site building built in 1936.

STANDARD OPERATING PROCEDURE

GW-001 Water Level and NAPL Measurement

---

1. Objective

Describe procedures to measure the depth to water and non-aqueous phase liquid (NAPL) thickness in an open borehole, cased borehole, monitoring well or piezometer.

2. Equipment and Materials

Field forms and/or field notebook.

- Decontamination fluids
- Bailer
- Weighted cotton string
- Oil/Water interface probe
- Water level meter (if oil/water interface probe is not available)

Water level and NAPL measurements can be collected by a variety of methods. A water level meter is used to collect depth to water measurements however an oil/water interface probe or other methods must be used to gauge NAPL depths. An electronic oil/water interface meter, consists of a cable divided into incremental measurements of 0.01 feet, and probe that consists of an infra-red circuit that detects the presence of a liquid, and a conductivity circuit that differentiates between conductive liquid (water) and non-conductive liquid (LNAPL or dense non-aqueous phase liquid [DNAPL] product). Typically, a steady tone and light indicate a non-conductive liquid (e.g. product) and an intermittent tone and light indicate a conductive liquid (e.g. water). Refer to the manufacturer’s instructions for details. Alternately, water level and NAPL measurements can be collected using a water level meter, clear bailer and weighted cotton string. Each method of data collection is described below.

3. General Information

- The water level in a monitoring well or piezometer should be allowed to stabilize for a minimum of 24 hours after development or construction before groundwater elevation and/or NAPL measurements are collected. The water level in a borehole can be measured during drilling; however, this should be noted in the field notebook.
- Water levels in multiple wells should be collected within the shortest timeframe practicable.
- Water and NAPL levels should be measured from the designated survey point as specified by the surveyor or highest point (or “V” notch) on the PVC. If the well is new, mark the datum point with an indelible marker and note reference location in

field book. Discuss with the project manager what reference point should be used to collect water measurements for specific sites.

- Water level and/or NAPL measurements should be made before any water is removed from wells because doing so may influence groundwater levels in the area of the investigation.
- Measurements should be made approximately three times to confirm the measurement. Each time a measurement is made it should be determined to the nearest one-hundredth of a foot (0.01).
- Water level and/or NAPL measurements should first be collected at the wells that are least contaminated and proceed towards the wells that are most contaminated. Decontaminate the water level meter or oil/water interface probe prior to initial use and after use at each location. If NAPL is encountered at a well where it was previously not observed, contact your project manager before continuing.
- Refer to the oil/water interface probe or water level meter instruction manual for guidance on indicator signals, as these may differ by manufacturer.

4. Execution

4.1 Water Level and NAPL Measurements Using Interface Probe

- Open wells to the atmosphere and allow them to equilibrate prior to collecting LNAPL depth measurements.
- LNAPL Depth (if present): Measure the LNAPL/air interface by slowly lowering the interface probe to the LNAPL surface. Be ready to stop as soon as the probe signals the LNAPL surface.
- Record the depth to LNAPL.
- Groundwater Depth: Continue slowly lowering the probe until it signals the presence of water.
- Record the depth to water.
- The LNAPL thickness is determined by subtracting the water depth from the LNAPL depth.

The depth and thickness of DNAPL can sometimes be determined by slowly lowering the interface probe past the LNAPL (if present) and water layers. Record the depth to the DNAPL layer. Finally, measure the depth to the well bottom.

The DNAPL thickness is determined by subtracting the DNAPL depth from the depth to well bottom.

- Decontaminate the interface probe and tape according to SOP QA-001.
- Dispose of any NAPL-impacted debris properly.
- Check with the Project Manager if you are uncertain of the appropriate disposal method.

4.2 LNAPL Measurements Using Clear Bailer

If LNAPL is suspected at a site, an oil/water interface probe should be used when gauging water level and NAPL measurements. However, a water level meter and a clear bailer may be used instead to estimate approximate LNAPL thickness if an oil/water interface probe is not available.

- Open wells to the atmosphere and allow them to equilibrate prior to collecting LNAPL depth measurements.
- Slowly lower the water level meter until contact with fluid is indicated by the meter.
- Record the depth to fluid measurement.
- Lower a clear bailer into the well and slowly into the LNAPL. Do not submerge the bailer.
- Slowly raise the bailer out of the well and measure LNAPL thickness in the bailer using a ruler or tape measure.

Calculating Depth to Groundwater

The depth to water can be calculated as follows:

DTW = DTF + PT
DTW = Depth to Groundwater
DTF = Depth to Fluid
PT = Measured Product Thickness

Calculating Corrected Depth to Groundwater

Once the LNAPL thickness is known and the depth to groundwater is known, the corrected depth to groundwater can be calculated.

Corrected DTW = Static DTW – (PT x G)
DTW = Depth to Ground Water
PT = Measured Product Thickness
G = Specific Gravity (density of free product / density of water)

4.3 DNAPL Measurements Using Weighted Cotton String

A weighted cotton string may be used to estimate approximate DNAPL thickness.

- Secure cotton string.
- Secure clean steel nuts and/or washers.

- Tie the string to the nuts/washers, so that there is adequate weight.
- Lower the weighted string into the well slowly, until a firm bottom is sensed.
- Remove the weighed string and measure the DNAPL coated portion of the string.
- Record the thickness.
- Dispose of any NAPL-impacted debris properly. Check with the Project Manager if you are uncertain of the appropriate disposal method.

5. Health and Safety Considerations

The health and safety considerations for the work associated with this SOP, including both potential physical and chemical hazards, will be addressed in the site specific Health and Safety Plan (HASP). The collection and accumulation of NAPL presents the potential for significant hazards that need to be managed. A detailed job safety analysis (JSA) should be completed prior to the start of work.

6. Considerations

- Weak batteries in water level and oil/water interface meters frequently produce weak or gradual auditory and/or visual responses, making it difficult to accurately determine when the probe of the unit has come in contact with ground water or NAPL. As such, it is recommended that electronic ground water-level indicators be tested before they are brought out into the field.
- Electronic oil/water interface meters do not respond to distilled water. Do not use de-ionized water to test these units.
- Wells that are not vertical may result in probe contact with the side of the well casing providing a false measurement. Once the probe has come in contact with ground water in the well, water may be trapped by capillary action between the probe and the well casing. If this happens, the unit may continue to signal even after the probe has been raised above the ground water surface. The deeper the well, the more likely this problem may occur. To correct this, the cable should be raised several feet above the water and shaken to remove water from the probe. A new ground water-level measurement should then be collected. If the signals from the unit are not abrupt or reproducible, the probe and tape may need to be retrieved and dried off before trying again.
- Accumulation of sediment, organic material, or floating debris in the probe may also result in gradual or non-reproducible readings. Wells that are constructed with metal inner casings may lead to difficulties in collecting reproducible ground water-level measurements because the inner sides of the well casing are conductive.

- In some cases, a rubber grommet or metal centralizer may need to be placed on the probe so that it cannot contact the inner casing.
- Well gauging equipment should be properly decontaminated between wells and piezometers to avoid cross contamination.
- Water levels in wells may be influenced by changes in river stages, pumping of nearby wells, precipitation, tides, etc.
- Using a bailer to estimate LNAPL thickness can result in inaccuracies because successful use of the bailer is dependent upon the expertise of the operator and assumes the check valve does not leak upon retrieval.
- The optical sensor on interface probes may become damaged if solvents are used to clean NAPL from the probes.
- The optical sensor may become smeared when used to measure NAPL, rendering pinpoint accuracy to an estimate at best.
- Close attention to decontamination procedures will improve accuracy, operational life, and reduce the risk of cross contamination with other wells.
- LNAPL thickness can be affected by fluctuations in the water table. In some cases, an LNAPL's thickness may decrease when the water table rises, while its thickness increases as the water table drops. In other cases, fluctuating water tables may cause sudden appearances and disappearances of LNAPL layers.
- Monitoring points with LNAPL can pose a problem when measuring the level of groundwater. Floating LNAPL can depress the groundwater level in a monitoring well or piezometer and distort the measurement. Therefore, the Corrected Depth (CD) formula shown above should be applied to groundwater level measurements in monitoring points where LNAPL are present:
- Some interface probes are factory-calibrated based on an assumed conductivity of NAPL and water, both of which may vary. An interface probe that is functioning properly may not be able to discern different NAPLs at all sites.
- An interface probe may not successfully provide both LNAPL and DNAPL measurements in the same well because the probe is coated by LNAPL and loses its ability to detect DNAPL.
- DNAPL, in particular, may be only slightly heavier than water, or may be neutrally buoyant. As a result, it can be easily disturbed. Once it is disturbed, meaningful measurements can be difficult or impossible to obtain. As such, all tapes or probes used for measurements should be used slowly.

7. References

U.S. EPA Environmental Response Team Standard Operating Procedures SOP: 2043,"Water Level Measurement" REV: 0.0, 2/11/00

U.S. EPA Environmental Response Team Standard Operating Procedures SOP: 2044," Monitor Well Development" REV: 0.1, 10/23/01.

8. Contacts

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Mark Ensign – (781) 721-4010 Boston
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STANDARD OPERATING PROCEDURE

GW-003 Low Flow (Low Stress) Groundwater Sampling

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1. Objective

Describe methods to collect groundwater samples most likely to produce results that represent aquifer conditions.

Low-flow purging is limited to wells that, with sustained pumping, exhibit no continuous drawdown.

2. Execution

- Prior to groundwater sampling consult with the project manager to confirm that the type of pump is appropriate and consistent with the approved work plan.
- Record activities in the field notebook (see SOP FD-001 Field Notebook) and on a Monitoring Well Sampling Record such as the examples in Attachment A. Use a separate form for each sampling location and event. You may forego the forms and record all information in the field notebook if the Project Manager approves.
- Calibrate pH, temperature, Specific Conductance (SC), turbidity, Dissolved Oxygen (DO), and Oxidation-Reduction Potential (ORP) on the meter(s). Use calibration methods provided by the manufacturer of the equipment. Note that appropriate calibration for dissolved oxygen requires a water saturated air environment, along with measured temperature and barometric pressure.
- Begin with the monitoring well believed to have the least contaminated groundwater and proceed systematically to the well with the most contaminated groundwater. Check the well, the lock, and the locking cap for damage or evidence of tampering.
- Slowly and gently measure the depth to water with a water level probe and/or oil-water interface probe. Do not measure depth to well bottom at this time (wait until sampling has been completed). Measure water level in accordance with SOP GW-001 Water Level Measurement.
- Attach new polyethylene or Teflon lined tubing to the sampling pump and the flow-through cell that contains the meter probes.
- Slowly and gently insert new polyethylene or Teflon lined tubing to the pump intake (or use dedicated tubing that remains in the well) and to the middle of the saturated screened interval or to the pre-determined sampling depth.
- The tubing intake should be kept at least two (2) feet above the bottom of the well to prevent disturbance or suspension of any sediment or Non-Aqueous Phase Liquid (NAPL) present in the bottom of the well. Record the depth of the pump intake.

- If possible, position your sampling equipment and tubing so that it is in the shade. The goal is to minimize the effect of sunlight raising the temperature of water being collected.
- Start the pump on the lowest setting and increase slowly until flow begins. Adjust the pumping rate so that drawdown in the well is minimal (0.3 feet or less, is desirable but not mandatory). Use a pumping rate between 100 to 1,000 milliliters per minute (mL/min) (or approximately 0.1 to 1 quarts per minute). Measure flow rate on the pump or using a graduated container every 3 to 5 minutes and record. The minimum purge volume will be twice the combined volumes of the sampling string (i.e. pump, tubing, and flow-through cell).
- While purging, record water levels every 3 to 5 minutes and monitor and record the water quality indicator parameters: pH, temperature, specific conductance (SC), dissolved oxygen (DO), and turbidity. If specified in the field sampling plan also include ORP.
- Purging is complete when, after three consecutive measurements, the water quality parameters have stabilized as follows:

    - pH (+/- 0.1 standard units)
    - temperature (+/- 3%)
    - SC (+/- 3%)
    - turbidity (+/- 10% if >5 NTU; if 3 values are <5 NTU, consider the values as stabilized)
    - DO (+/-10% if >0.5 mg/L; if 3 values are <0.5 mg/L, consider the values as stabilized)
    - ORP (+/- 10 mV)

- Dispose of purge water according to the field plan.

Sample Collection:

- Following purge, remove the discharge tubing from the flow-through cell. Do not disturb pump and tubing between stabilization and sample collection.
- Fill sample containers directly from the sampling device in order of decreasing volatility (i.e., Volatile Organic Compounds (VOC) samples are collected first; see SOP SC-002 Sampling Handling). Fill all containers from the discharge end of the tubing. Collect samples at a flow rate equal to the steady state purge rate.
- If not using a dedicated pump, remove sampling device and decontaminate (see SOP QA-001 Equipment Decontamination). Discard used tubing.
- Store samples in a cooler on ice for transport to the laboratory.
- Measure depth to bottom of well.

- Secure the well cap.

3. Limitations

- Prior to departure for the field, obtain available information on well construction for use in field investigation (i.e., screen and riser material, well diameter and depth, screened interval, optimum sampling depth, etc.).
- If possible, when using dedicated equipment, install equipment into well at least 24 hours before sample collection to minimize disturbance of the water column and/or suspension of sediments or NAPL on bottom.
- If water quality indicator parameters do not stabilize after removing 3 to 5 well volumes or 2 hours, contact the Project Manager. Three options will be available: 1) continue purging until stabilization; 2) discontinue purging and do not sample; or 3) discontinue purging and sample.
- The key indicator parameter for VOCs is DO. The key indicator parameter for all other samples is turbidity.
- Fill all sample containers with minimal turbulence by allowing the groundwater to flow from the tubing gently down the inside of the container.
- Consult with the project manager before field filtering samples for metals if using low-flow sampling.
- Be aware of any preservatives in the sample bottles and handle with care, in accordance with the Health and Safety Plan.

4. References

Standard Reference for Monitoring Wells (April 19, 1991), Massachusetts DEP, DEP Publication No. WSC-310-91.

Reproducible Well-Purging Procedures and VOC Stabilization Criteria for Ground Water Sampling (1994), M.J. Barcelona, H. A. Wehram, and M.D. Varljen, Ground Water, Vol. 32, No. 1, 12-22.

Low-Flow Purging and Sampling of Ground Water Monitoring Wells with Dedicated Systems (1995), R.W. Puls, and C.J. Paul, Groundwater Monitoring and Review, Summer 1995 116-123.

Low Stress (Low Flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells (2010), EQASOP-GW 001 Low Stress (Low Flow) SOP, Revision 3, U.S. Environmental Protection Agency, Region I, January 19, 2010.

Ground Water Sampling Procedure Low Stress (Low Flow) Purging and Sampling, (1998), Ground-Water Sampling SOP, Final, U.S. Environmental Protection Agency, Region II, March 16, 1998.

RCRA Ground-Water Monitoring: Draft Technical Guidance, (1993), U.S. Environmental Protection Agency, EPA/530-R-93-001.

To Filter, or Not to Filter, That is the Question, (1997), Special Topics Subcommittee Letter Report EPA-SAF-EEC-LTR-97-011, April 29, 1997, Meeting, U.S. Environmental Protection Agency, Science Advisory Board Environmental Engineering Committee, September 5, 1997.

Should Filtered or Unfiltered Groundwater and Surface Water Samples be Collected for the Risk Assessment?, (1995), MCP Q&A: Subparts I and J, Special #4, Bureau of Waste Site Cleanup, Massachusetts Department of Environmental Protection (DEP), February, 1995.

5. Attachments

Attachment A - Monitoring Well Sampling Record

6. Contacts

Brian Conte
Saskia Oosting

MONITORING WELL SAMPLING RECORD

PID Reading ____________________

Job Name ____________________

Job Number ____________________

By ____________________ Date ____________________

Location ____________________

Measurement Datum ____________________

Well Number ____________________

Pre-Development Information

Time (start) ____________________

Water Level ____________________

Total Depth of Well ____________________

One Purge Vol ____________________

Three Well Volume ____________________

Water Characteristics

Color ____________________ ________ Clear _____ Cloudy

Odor _____ None _____ Weak ________ Moderate _____ Strong

Any films or immiscible material ____________________

Volume **(gal)**	**Time**	**pH**	**Temp (°C)**	**Spec. Conductance (µS/cm)**	**Turbidity (NTU)**	**DO Conc. (mg/L)**	**ORP (mV)**	**TDS**

Total Volume Removed (gal) ____________________

pH ____________________

Temperature (°C) ____________________

Specific Conductance (µS/cm) ____________________

DO Concentration (mg/L) ____________________

ORP (mV) ____________________

TDS ____________________

Post Development Information

Time (Finished) ____________

Water Level ____________

Total Depth of Well ____________

Approximate Volume Removed (gal) ______________________________

Water Characteristics

Color ____________________ ____ Clear ____ Cloudy

Odor ____ None ____ Weak ____ Moderate ____ Strong

Any films or immiscible material ____

Comments

Low-Flow Groundwater Sampling Form

Project number and name

Sampling personnel

Sample date

Well ID

Well location description:

Well Construction

Well diameter

Well measurement point

Roadbox condition

Well screen interval

Well depth

Sampling Information

Initial depth to water

Time:

Sample intake depth

Pump type and ID

Stabilized flow rate

Stabilized flow rate = flow rate with no further drawdown

Samples Collected

VOCs 8260 ☐

SVOCs 8270 ☐

VPH ☐

EPH ☐

Metals ☐

PCBs ☐

Other ☐

Field values at time of sample collection:

Time:

Depth to water:

Sp.Cond. mS/cm

DO mg/L

ORP mV

pH s.u.

Temp. °C

Turb. NTU

Cumulative Time (min.)	**Volume (gal)**	**Water depth (ft)**	**Temp. (°C)**	**Sp.Cond. (mS/cm)**	**D.O. (mg/L)**	**pH (s.u.)**	**ORP (mV)**	**Turb. (NTU)**
Typical Groundwater Values			5 to 15	0.05 to 5	0 to 4	5 to 7	-100 to +500	aim for <10

Notes:

Sample Information:

Sample ID

Sample Time:

Color:

Turbidity:

Field Filtered YES / NO

Analyses:

Filter type:

Odor/Sheen/NAPL

Duplicate Collected YES / NO

If yes, duplicate ID:

Purge water disposal? to ground drummed other:

Well Volume Conversion:

Diam. (in)	Factor (gal/ft)
1	0.04
1.5	0.09
2	0.16
4	0.65
6	1.50

well volume =

3.14 x (r)^2 x 7.48 gal/ft

where r = 1/2 diameter in ft

Stabilization Criteria:

Sp.Cond. +/- 3%

DO +/- 10%

ORP +/- 10 mV

pH +/- 0.1 Std Units

Temp. +/- 3%

Turb. +/- 10% if values >1 NTU

Guidance:

1. Position tubing at midpoint of saturated screened interval
2. Minimize drop in water level and purge until parameters are stable
3. Disconnect flow thru cell during sampling
4. Call Project Manager if issues arise (e.g. stabilization takes more than 2 hrs, well goes dry, odd data).
5. For VPH and VOC samples, if stabilization flow rate is less than 200 ml/min, contact PM

STANDARD OPERATING PROCEDURES

SOP NO. HS-003 Container Management

1.1 Objective

This Standard Operating Procedure (SOP) has been developed to minimize the potential for injuries to GEI employees performing container and drum handling and sampling, through proper use of engineering and administrative controls, personal protective equipment (PPE), and education.

1.2 General

This SOP is intended for use by employees engaged in work with the management of containers that may contain hazardous substances or contaminated media. The site-specific health and safety plan (HASP) should include a hazard assessment and control methods to be implemented by GEI employees. These hazards should be reviewed in the project safety briefing and documented on the Project Safety Briefing form, found on the Safety page of the GEI intranet.

Hazardous substances and contaminated media will be handled, transported, labeled, and disposed of in accordance with this paragraph. Drums and containers will meet the appropriate United States Department of Transportation (DOT), Occupational Safety and Health Administration (OSHA), and Environmental Protection Agency (EPA) regulations for the wastes that they contain.

Site operations will be organized to minimize the amount of drum or container movement. Prior to movement of drums or containers, employees exposed to the transfer operation will be notified of the potential hazards associated with the contents of the drums or containers. Unlabeled drums and containers will be considered to contain hazardous substances and handled accordingly until the contents are positively identified and labeled.

Fire extinguishing equipment meeting the requirements of 29 CFR Part 1910, Subpart L, shall be on hand and ready for use to control incipient fires.

DOT specified salvage drums or containers and suitable quantities of proper absorbent will be kept available and used in areas where spills, leaks, or ruptures may occur. Where spills may occur, a spill containment program, which may be part of the HASP, will be implemented to contain and isolate the entire volume of the hazardous substance being transferred.

1.3 Opening Drums and Containers

The following procedures will be followed in areas where drums or containers are being opened:

- Employees not actually involved in opening drums or containers will be kept a safe distance from the drums or containers being opened.

- If employees must work near or adjacent to drums or containers being opened, a suitable shield that does not interfere with the work operation will be placed between the employee and the drums or containers being opened to protect the employee in case of accidental release.

- GEI employees will not handle or attempt to open bulging containers. Employees will not stand upon or work from drums or containers. GEI will contract with a hazardous waste company to handle, manage, and dispose of a bulging drum.

1.4 Material Handling Equipment

Several types of equipment can be used to move drums: (1) a drum grappler attached to a hydraulic excavator; (2) a small front-end loader, which can be either loaded manually or equipped with a bucket sling; (3) a rough terrain forklift; (4) a roller conveyor equipped with solid rollers; and (5) drum carts designed specifically for drum handling. GEI employees will not operate heavy equipment to move drums. This will be handled by an authorized subcontractor.

The following procedures can be used to maximize worker safety during drum handling and movement:

- Train personnel in proper lifting and moving techniques to prevent back injuries.

- Make sure the vehicle selected has sufficient rated load capacity to handle the anticipated loads, and make sure the vehicle can operate smoothly on the available road surface.

- Air condition the cabs of vehicles to increase operator efficiency; protect the operator with heavy splash shields.

- Supply operators with appropriate respiratory PPE when needed. Normally either a combination SCBA/SAR with the air tank fastened to the vehicle, or an airline respirator, and an escape SCBA are used because of the high potential hazards of drum handling. This improves operator efficiency and provides protection in case the operator must abandon the equipment.

- Have overpacks ready before any attempt is made to move drums.

- Before moving anything, determine the most appropriate sequence in which the various drums and other containers should be moved. For example, small containers may have to be removed first to permit heavy equipment to enter and move the drums.

- Exercise extreme caution in handling drums that are not intact and tightly sealed.
- Ensure that operators have a clear view of the roadway when carrying drums. Where necessary, have ground workers available to guide the operator's motion.

1.5 Leaking, Open, and Deteriorated Drums

If a drum containing a liquid cannot be moved without rupture, immediately transfer its contents to a sound drum using a pump designed for transferring that liquid. Contract an approved vendor to immediately use an over pack container if the:

- Leaking drum contains sludge or semi-solids;
- Open drum contains liquid or solid waste;
- Deteriorated drum can be moved without rupture.

1.6 Radioactive Wastes

GEI does not routinely handle or manage radioactive waste. If required to do so for a project, procedures will be approved by the Corporate Health and Safety Officer (CHSO) and Regional Health and Safety Officer (RHSO).

1.7 Shock-Sensitive Wastes

GEI employees will not handle shock-sensitive waste. Shock-sensitive waste or chemicals may explode with friction, movement or heat. Some chemicals are shock-sensitive by nature-, others become shock-sensitive through drying, decomposition, or slow reactions with oxygen, nitrogen, or the container. Some chemicals that are, or can, become shock-sensitive will have that hazard noted in the safety data sheet (SDS).

- Drums and containers containing packaged laboratory wastes will be considered to contain shock-sensitive or explosive materials until they have been characterized. *Caution: Shipping of shock-sensitive wastes may be prohibited under U.S. Department of Transportation regulations. Shippers will refer to 49 CFR 173.21 and 173.50*.

1.8 Laboratory Waste Packs

It is unlikely that GEI employees work in an environment where laboratory waste packs are used. However if one is found, do not handle or open it. Complete the incident reporting form to identify finding the pack and then work with the Project Manager to find the appropriate means of disposal.

1.9 Sampling of Drum and Container Contents

Sampling of containers and drums will be done in accordance with a site-specific sampling plan that will be developed in conjunction with a site-specific HASP.

1.10 Staging Areas

Drums and containers will be identified and classified prior to packaging for shipment. Drum or container staging areas will be kept to a minimum number as approved by the client to safely identify and classify materials and prepare them for transport. Staging areas will be provided with adequate access and egress routes. Bulking of hazardous wastes will be permitted only after a thorough characterization of the materials has been completed and approved by the Client. GEI employees will not sign manifests unless a written authorization agreement is in place with the Client.

1.11 Shipment and Training

Shipment of materials to off-site treatment, storage, or disposal facilities involves the entry of waste hauling vehicles into the site. U.S. Department of Transportation (DOT) regulations (49 CFR Parts 171-178) and EPA regulations (40 CFR Part 263) for shipment of wastes must be complied with. Employees managing hazardous waste on behalf of a client must complete annual RCRA training and triannual DOT hazardous materials training. Training must be current and a manifest agreement with the client must be in place before employees can sign hazardous waste manifests on behalf of a client.

1.12 Tank and Vault Procedures

GEI employees do not routinely sample vaults and tanks. Entry procedures will be coordinated and approved by the CHSO and RHSO.

1.13 Injury Reporting

If a GEI employee suffers an injury on the job that is not life threating, call Medcor Triage at 1-800-775-5866 to speak with a medical professional. Then, immediately report the injury to the Supervisor/Project Manager and Regional Health & Safety Officer (RHSO).

After verbal notification has been made, an Incident Report Form is to be completed by the employee and/or Supervisor/Project Manager and submitted to the People & Safety Team immediately following care of the incident. This form is available on the Safety App (smart phones) and on the Safety page on the GEI intranet.

Upon notification from a Branch or Office Manager, Human Resources, and/or the receipt of the Incident Report Form, the RHSO will conduct an investigation and evaluation on what happened and how and why it happened. The Corporate Health & Safety Officer (CHSO) will then recommend (as necessary) engineering controls, personal protection equipment, training or other appropriate measures to minimize the potential for future injuries. The CHSO/RHSO may develop educational information based on lessons learned for distribution to GEI employees.

1.14 Limitations

Follow safety procedures as defined in the site-specific HASP. Appropriate PPE must be worn correctly to provide the intended level of protection and appropriate training must be current

1.15 References

OSHA 1910.120 Hazardous Waste Operations and Emergency Response (j) Handling of Drums and Containers

1.16 Attachment

None.

1.17 Contact

Health&SafetyTeam@geiconsultants.com

1.18 Review History

- June 2016
- May 2014
- November 2013
- October 2011
- Initial Version Date Unknown

STANDARD OPERATING PROCEDURE

QA-001 Equipment Decontamination

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1. Objective

This SOP describes methods used to decontaminate reusable sampling equipment for projects that require collection of organic and inorganic analytical samples. The goal is to minimize cross-contamination between samples. This maximizes confidence that field samples will be representative of specific locations and conditions.

Refer to the work plan or project manager to determine if different decontamination methods are acceptable.

2. Execution

- All contractor-provided equipment (augers, rods, spoons, backhoe buckets) should be decontaminated by steam cleaning or pressure washing prior to coming on site. If there is doubt about cleanliness of drilling tools, they should be decontaminated before use at the site.
- Sampling equipment decontamination is a sequential procedure consisting of the following steps:

    - Alconox-solution wash (or equivalent non-phosphate detergent)
    - Potable water rinse
    - A ten percent reagent grade nitric acid wash should be used to strip potential inorganic contaminants from sampling devices.
    - Laboratory grade 100 percent methanol, should be used to strip potential organic contaminants from sampling devices.
    - Three distilled/deionized water rinses.

- Alconox solution is a mixture of approximately 1 cup of Alconox per 1 gallon of potable water. Alconox solution wash requires scrubbing the equipment with a brush soaked in Alconox solution to remove visible contamination or dirt from sampling devices.
- Split-spoon samplers must be decontaminated prior to collecting each sample. The procedure follows:

    - Overall wash and scrub in a bucket of Alconox solution
    - Potable water rinse.
    - 10% nitric rinse
    - 100% laboratory grade methanol rinse
    - Three distilled-water rinses.

  The same procedure is applied to all devices that may contact soil or groundwater slated for analytical samples - spoons and knifes used to inspect or sample soils; water level indicators; oil/water interface probes.

Equipment used for well development of multiple wells must be decontaminated between wells.

Pumps and tubing should be flushed using a minimum of one gallon of Alconox-solution followed by a gallon of potable water. Some projects may require methanol (in much lower quantities) and distilled water instead of or in addition to the Alconox-solution and potable water.

For pumps and tubing, a final rinse of the sampling equipment may be performed with the water being sampled.

Equipment blanks measure the effectiveness of the decontamination procedures. Blanks should be collected per guidance provided in QA-002, Field Quality Control Samples.

3. Limitations

- Do not store the deionized/distilled water in polyethylene bottles, use Nalgene, glass, or Teflon. Polyethylene may leach phthalates.
- Do not attempt to decontaminate string or rope - replace it.
- Due to eye and skin absorption hazards, safety glasses and gloves must be worn when handling decontamination solvents.
- Decontamination procedures may also require modification based on state or federal requirements.
- Steam cleaning or pressure washing with potable water is generally an acceptable decontamination method for drilling equipment (i.e., augers). Check with the work plan.
- Dedicated equipment need not be decontaminated beyond initial decontamination prior to field use.

4. References

Environmental Response Team (ERT), US EPA. Sampling Equipment Decontamination, SOP No. 2006, Revision 0.0. August 11, 1994.

US EPA Region 9. Sampling Equipment Decontamination, SOP No. 1230, Revision 1.September 1999.

5. Contacts

Brian Conte
Bill Simons

STANDARD OPERATING PROCEDURE

QA-002 Field Quality Control Samples

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1. Objective

Field Quality Control (QC) samples are used to monitor the reproducibility and representativeness of field sampling. The QC samples are handled, transported, and analyzed in the same manner as the associated field samples. QC samples may include trip blanks, equipment blanks, and field duplicates.

2. Execution

2.1. Trip blanks

- Used to monitor possible sources of contamination from transport, storage, inadequate bottle cleaning, or laboratory methodologies.
- Sample containers filled at the laboratory with analyte-free water are transported to and from the site, and are not opened until time of analysis.
- Trip blanks are stored with the sample containers prior to and after field activities and remain with the collected samples until analyzed.
- Generally, one trip blank per volatiles analysis (e.g. volatile organic compounds) shipment.
- Consider submitting a trip blank when sample shipment is by Fed Ex or other large carrier, or laboratory courier.
- Trip blanks should be recorded in the field notebook and on the chain-of-custody that same as all other samples.

2.2. Equipment blanks

- Equipment blanks (also known as equipment rinsate blanks) are used to monitor possible sources of contamination associated with sample collection. Monitors on-site sampling environment, sampling equipment decontamination, sample container cleaning, the suitability of sample preservatives and analyte-free water, and sample transport and storage conditions
- Equipment blanks are collected by pouring laboratory supplied or distilled or deionized water over sampling tools that have been decontaminated per the work plan, into sample containers.
- Equipment blanks are stored with the associated field samples until submitted for analysis.
- Generally collected when site conditions indicate site related contamination is a concern. Check project-specific work plan and/or quality assurance project plan for required frequency.
- Prepare equipment blanks immediately after the equipment is cleaned in the field and before leaving the sampling site.
- Prepare equipment blanks by rinsing the decontaminated sampling equipment set with the appropriate type of analyte-free water and collecting the rinse water in appropriate sample containers.

- If a potable water rinse is the typical final step, collect the equipment blank with analyte-free water after the potable water rinse.
- Equipment blanks should be recorded in the field notebook and on the chain-of-custody that same as all other samples.

2.3. Field Duplicates

- Used to evaluate the precision and representativeness of the sampling procedures.
- Field duplicates are two samples collected from the same location using the same procedures. Both samples are submitted to the laboratory as individual samples with different sample identification.
- Field duplicates from groundwater sampling for all analyses except volatiles analysis are collected by alternating filling sample containers from the same sampling device. Field duplicates for volatiles analysis are filled sequentially.
- Soil or sediment field duplicates are collected by homogenizing the sample for all analyses except volatiles. The homogenized sample is then divided into two equal portions and placed in separate sample containers. Field duplicates for volatile analysis are collected at two adjacent sampling locations.
- Each sample is assigned different sample identifications.
- Field duplicates are generally collected at frequency of 1/20 samples. Check project-specific work plan and/or quality assurance project plan for required frequency.
- All field QC samples should be labeled in the field and submitted “blind” to the laboratory – as if they are separate, primary samples.
- Field duplicates should be recorded in the field notebook and on the chain-of-custody that same as all other samples.
-

2.4. Matrix-Spike samples (MS/MSD)

- Matrix spike and matrix spike duplicate samples (MS/MSDs) are environmental samples that are spiked in the laboratory or in the field with a known concentration of a target analyte(s) to verify percent recoveries.
- Matrix spike and matrix spike duplicate samples are primarily used to check sample matrix interferences. They can also be used to monitor error due to laboratory bias and poor precision. However, a data set of at least three or more results is necessary to statistically distinguish between laboratory performance and matrix interference.
- Generally, the laboratory is required to extract and analyze MS or MS / MSDs at a minimum frequency of 5% of samples being analyzed for the target analyte(s). If the project or client criteria require an MS or MS/MSD, collect sufficient volume in the appropriate containers, and designate the sample to be used as the MS or MS/MSD on the chain of custody.
- Calculate the percent recovery for all spiked analytes for both the MS and MSD. For MS/MSDs also calculate the relative percent difference (RPD). The

RPD for each spiked analyte is calculated using the amount detected not percent recovery. If your data will be subjected to validation, the % recovery and the RPD will generally be determined by the validator.

2.5. Typical QA/QC Frequency

- QA/QC frequency is determined by project, client or regulatory criteria and should be verified prior to sample collection. Generally, QA/QC samples are collected according to the frequency described below:

Duplicate Samples	One per sampling event, one per 10 samples collected, or one every two weeks, whichever comes first.
Equipment Blanks	For each equipment type that is not dedicated or disposable - one per sampling event, one per 20 samples collected, or one every two weeks, whichever comes first.
Trip Blanks	One per sample delivery group, or in each cooler containing VOC soil or aqueous samples, depending on project.
MS or MS / MSDs	One MS or MS/MSD per sampling event, one per 20 samples collected, or one every two weeks, whichever comes first.

3. Limitations

- Trip blanks must never be opened in the field.
- Trip blanks are usually for VOCs only because less volatile compounds are not likely to cross-contaminate other samples by simply being in close proximity.
- Laboratory-grade water must be used during the collection of equipment blanks.
- Field duplicates must have different sample identifications.

4. References

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (November 1986), U.S. Environmental Protection Agency Department of Solid Waste, Washington, D.C.

U.S. Environmental Protection Agency Office of Emergency and Remedial Response, 1990, Quality assurance/quality control guidance for removal activities: EPA/540/G-90/004, Sampling QA/QC Plan and Data Validation Procedures Interim Final, April, 1990.

5. Contact

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STANDARD OPERATING PROCEDURE

SC-002 Environmental Sample Handling

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1. Objective

Describe appropriate environmental sample handling procedures.

The procedures include collection and transport of environmental samples to a laboratory for chemical analysis. Appropriate sample handling should ensure that samples are properly:

- labeled and documented;
- preserved;
- packaged; and
- transported

2. Execution

- Prior to mobilizing to the field, select a shipper or arrange for a courier for sample delivery to the laboratory. If using a shipper (i.e., FedEx or UPS) determine the time constraints for pickup requests, the location and hours of the nearest shipping office, and any size/weight restrictions.
- A waterproof or permanent ink pen should be used for all labels. The label should have an adhesive backing and be placed on the jar or bottle, not on the cap. In addition, clear packing tape can be placed over the sample label to secure it to the bottle as moisture from the samples can loosen the label adhesive.
- Record the following information on the label and in the field notebook (See SOPs FD-001 and FD-003):
    - Project number
    - Sample identification (i.e. MW-201 or SS-2)
    - Date and time (military time) of collection
    - Sampler’s initials
    - Analysis methods
    - Preservative, if present
- Pre-preserved laboratory jars are preferable and should be used whenever practicable. If sample jars are not pre-preserved, add preservative as appropriate.
- At each sampling location, samples should be collected in order of volatility, most volatile first. Samples collected for volatile analysis should be placed in sample containers immediately upon retrieval of the sample.
- Aqueous samples for volatile analysis should be collected without air bubbles.
- The collection and preservation method of soil samples for volatile analysis may depend on project, client, or state regulatory requirements. Check with your Project Manager and/or SOPs SM-001 and SM-002 where appropriate.

- Care must be taken to avoid getting soils on the threads of sample jars, which can cause a faulty seal.
- If compositing samples in the field, specify the basis for composite (i.e. volume, weight, spoon recovery, etc.) and record in the field book the procedure for compositing the sample.
- Once samples have been collected and labeled, place samples in a cooler with sufficient bagged ice or freezer packs (blue ice) (if allowed) to chill samples to 4°C. If using ice, use double-bagged ice.
- Complete the chain-of-custody (COC) (SOP FD-003).
- If transporting the samples by way of a shipper:
    i. The sample cooler should have water drains securely sealed with duct tape, both on the inside and outside of the cooler.
    ii. Place a layer of packing material on the bottom of the cooler as a cushion.
    iii. Individually wrap each sample bottle with bubble packing or suitable packing material and place the wrapped bottles upright in the cooler with sufficient packing material between samples to avoid breakage.
    iv. Methanol preserved samples for volatiles analysis should be packed so they remain upright with the soil completely covered by the methanol during transport.
    v. Place a layer of packing material on top of the sample bottles.
    vi. Place bagged ice or freezer packs on top of the packing material. Fill the remaining space in the cooler with packing material to eliminate the possibility of vertical movement of samples.
    vii. Place the completed and signed chain-of-custody form in a sealable plastic bag and place on top of the packing material in the cooler, or tape it to the inside lid of the cooler.
    viii. Fill out the appropriate shipping or courier forms and attach to the top or handle of the cooler. If necessary, place the proper shipping labels on the cooler. Have the courier sign the COC form (or write pickup by FEDEX, UPS, etc. with date and time). Place a signed and dated custody seal on the cooler.
- All samples should be submitted to the laboratory as soon as possible. In many cases, same day shipping will be required by the client or the project manager. Be clear on this before beginning the field work.
- A copy of the waybills should be kept by the field supervisor to track shipments if necessary.

3. Limitations

- If samples are shipped on a Friday, call the laboratory ahead of time to confirm that personnel will be at the laboratory to receive and log-in the samples.
- During warm weather, make sure to use plenty of ice in the shipping container.

- Field personnel should be aware of analyses which have short hold times and schedule sampling events and shipping accordingly. Shipment of samples for analyses with short hold times must be arranged for in advance. Refer to the project work plan, quality assurance project plan, or state/federal regulations for holding time and preservative information. Contact the laboratory ahead of time when shipping samples with short hold time to ensure the lab is prepared for these analyses.
- For glassware containing preservatives (e.g., HCl, HNO_3), take care not to overfill the container, thus flushing the preservative out of the bottle.
- Never composite samples for VOCs in the field. Collect individual aliquots and direct the laboratory to perform compositing, if needed.
- Collection of aqueous samples should not be performed over the opening of a monitoring well. Preservatives from overfilling, a marker pen or other objects could fall into the well.
- If the recharge volume for a monitoring well is low, completely fill all volatile vials and then collect the minimum sample volume required for each remaining analysis.
- During subsurface soil sampling, if the recovery from the split-spoon sample is inadequate, if appropriate, resample the bottom of the borehole to obtain proper sample volume.
- Laboratories will homogenize and test the contents of the sample container, unless directed otherwise. Samples should not contain rocks, twigs, leaves, etc… unless these materials are of interest.

4. References

New Jersey Department of Environmental Protection, Field Sampling Procedures Manual, August 2005.

Connecticut Department of Environmental Protection, Guidance for Collecting and Preserving Soil and Sediment Samples for Laboratory

Preservation Techniques for Volatile Organic Compound (VOC) Soil Sample Analyses, WSC#99-415. Massachusetts Department of Environmental Protection.

5. Contacts

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STANDARD OPERATING PROCEDURE

SC-003 Investigation Derived Waste

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1. Objective

Describe characterization and management of Investigation Derived Waste (IDW) resulting from site investigation activities.

IDW is solid and/or aqueous waste generated during environmental site investigations.

2. Execution

- Determine the suspected contamination type and impacted media based on previous investigations, available analytical data, and/or site history.
- Consider the following when selecting IDW management option(s):
    - Anticipated volume of IDW to be generated during on-site activities
    - Potential contaminants and their concentrations
    - Proximity to population centers and the potential for unauthorized site access
    - Potential exposures to workers
    - Potential for environmental impacts
    - Community concerns
    - Potential storage areas
    - Regulatory constraints
    - Potential on-site treatment options
    - Duration of storage
    - Client concerns or requirements
- Review IDW Management Options summarized in Attachment A for each media suspected of contamination.
- Select IDW Management Option(s) prior to the commencement of field activities that will generate waste materials.
- Include the selected IDW Management Option(s) in the Field Plan or other project documents.

Considerations and guidelines for IDW management for specific field tasks are provided below.

2.1. Test Pit Excavation

- Segregate contaminated soil from uncontaminated soil using visual and/or field screening methods.
- Use appropriate barrier (such as two layers of 6-ml plastic sheeting) for temporary stockpiling of contaminated soil adjacent to test pit.

- Backfill test pits with uncontaminated soil, unless otherwise directed by project manager.
- If directed by the Project Manager to return contaminated soil to the test pit, backfill soil in the same order as the soil was excavated from the test pit.

2.2. Boring/Monitoring Well Installation

- For auger borings, segregate contaminated soil (determined by visual and/or field screening methods) from uncontaminated soil during drilling. Segregate residual contaminated soil from split-spoon sampling.
- Auger cuttings or sediment generated by drive and wash may be spread around the ground surface at the boring location if it is acceptable to the client and the governing regulatory agency. If not, IDW may be placed in an appropriate area or container pending characterization and appropriate disposal. (A useful rule of thumb is to assume generation of one 55-gallon drum of cuttings for each 20 feet drilled with 7-¼-inch-I.D. augers).
- Segregate contaminated drilling fluid from uncontaminated fluid for rotary wash borings.
- Drilling fluid management options include pouring the drilling fluid on the ground near the boring location, if acceptable to the client and governing regulatory agency, or containerizing the fluid in drums or tanks.

2.3. Well Development/Sampling

Contaminated groundwater removed from wells by pumping or bailing for the purpose of well development and sampling may be poured on the ground near the well, if it is acceptable to the client and the governing regulatory agency. Otherwise, it should be containerized in drums or tanks.

2.4. Decontamination Fluids

Decontamination fluids may be poured on the ground in the vicinity of the well if approved by the project manager. Alternatively, the fluids may be containerized in drums or tanks.

2.5. Disposable Personal Protective Equipment

Disposable personal protective equipment (PPE) should be managed like any other IDW. However, with the clients' and project manager's approval, it may be removed from the site and disposed of as ordinary rubbish if it has not come into contact with contaminated materials.

3. Limitations

- The simplest IDW management option is to return the IDW to its source location.
- However, the selected IDW management options must meet state/federal regulations and have the client's approval. Consult with state/federal policies for IDW-related matters.

- The client is responsible for the disposal of IDW, should disposal be necessary.

4. References

Guide to Management of Investigation - Derived Wastes (April 1992), United States Environmental Protection Agency, Publication 9345.3-03FS.

Standard References for Monitoring Wells, Massachusetts Department of Environmental Protection, Publication No. WSC-310-91.

5. Attachments

Attachment A - Summary of Investigation Derived Waste Management Options
Attachment B - CTDEP Waste Guidance

6. Contacts

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Attachment A: - SUMMARY OF IDW MANAGEMENT OPTIONS
GEI Consultants, Inc. Standard Operating Procedures
Management of Investigation - Derived Waste

Type of IDW	Generation Processes	Management Options	Remarks
Soil	Boring/monitoring well installation Test pit excavation Soil sampling	Return to source location immediately after generation	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Spread around boring, test pit, or original source location	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Containerize and temporarily store on site	Can temporarily store in stockpiles or covered containers (i.e. drums, roll-off containers). Stockpiles must be underlain by plastic sheeting and covered with plastic sheeting. Plastic sheeting must be secure. Storage consistent with state/federal regulations.
		Send to off-site, treatment or disposal facility within appropriate timeframes	Requires proper shipping documents (i.e. manifest, Bill of Lading, etc.), analytical characterization
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Store temporarily awaiting laboratory analysis.	Storage consistent with state/federal regulations. Can temporarily store in stockpiles or covered containers (i.e. drums, roll-off containers). Stockpiles must be underlain by plastic sheeting and covered with plastic sheeting. Plastic sheeting must be secure.
Sediment/Sludge	Sludge pit sampling Sediment sampling	Return to source immediately after generation	Acceptable, if authorized by the client, the governing regulatory agency, and the project manager.
		Store temporarily on site.	Storage consistent with state/federal regulations.
		Send to off-site facility within 90 days	Requires manifests, analytical characterization
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)

Attachment A: - SUMMARY OF IDW MANAGEMENT OPTIONS
GEI Consultants, Inc. Standard Operating Procedures
Management of Investigation - Derived Waste

Type of IDW	Generation Processes	Management Options	Remarks
Aqueous liquids (groundwater, surface water, drilling fluids, other wastewater)	Well installation/development Well purging during sampling Ground water discharge - pump tests Surface water sampling	Pour onto ground close to well	Non-hazardous liquids only. Should not exhibit a sheen or separate phase product. Do not discharge to the ground up-gradient of the source location. Ensure that it is permissible by local, state, and Federal regulations Is acceptable to the client, the governing regulatory agency, and the project manager.
		Store temporarily on site	If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Send to off-site commercial treatment unit within appropriate timeframes	Refer to State regulations for appropriate timeframe. Requires appropriate shipping documents (i.e., manifest, Bill of Lading), analytical characterization
		Send to POTW	Obtain appropriate discharge permit(s)
		Store for future treatment and/or disposal.	Storage consistent with state/federal regulations. Consistent with final remedial action
		Discharge to surface water	OK if it complies with state and federal regulations. Obtain appropriate discharge permit(s).
Decontamination fluids	Decontamination of PPE and equipment	Store temporarily on site	If a RCRA hazardous waste, must meet RCRA Container/Waste Pile/Tank requirements (see notes)
		Send to off-site facility within appropriate timeframes	Requires manifests, analytical characterization
		Store for future treatment and/or disposal. Storage consistent with state/federal regulations.	Consistent with final remedial action
Disposable PPE	Sampling, drilling, and test pit excavation observation, other on-site activities	Store temporarily on site	Dispose of appropriately after characterization
		Place in on-site industrial dumpster	Project-specific determination required – must be acceptable to client and project manager
		Send to off-site facility within 90 days	Project-specific determination required
		Store for future treatment and disposal.	Storage consistent with state/federal regulations. Project-specific determination required

Notes:

1) PPE - personal protective equipment
2) POTW - publicly owned treatment works
3) Generation processes listed here are provided as examples.
IDW may also be generated as a result of other site activities.
4) RCRA Container/Waste Pile/Tank requirements:
Containers; 40 CFR 264 Subpart I and 265 Subpart I
Waste Piles; 40 CFR 264 Subpart L and 265 Subpart L
Tanks; 40 CFR 264 Subpart J and 265 Subpart J

Connecticut Department of Environmental Protection

Connecticut's RCRA "Contained-In" Policy

Characterization of Contaminated Soil and Groundwater

Policy
RCRA hazardous waste determinations for contaminated soil and groundwater may compare contaminant concentrations with the characterization criteria below. If the concentrations are below these criteria then the soil and groundwater do not need to be managed in Connecticut as RCRA hazardous waste. If the concentrations are above these levels then the soil/water must be treated, stored, transported, and disposed in the same manner as hazardous waste.

Purpose
To simplify the management of non-hazardous contaminated soil and groundwater and to encourage remediation of contaminated sites.

Applicability
This policy applies to contaminated soil and groundwater managed in Connecticut. It does not establish cleanup criteria. When contaminant concentrations are below the levels described in this policy, but are greater than applicable Connecticut Remediation Standard Regulations ("RSR") criteria, then the soil and groundwater must be handled as non-hazardous contaminated soil and groundwater subject to applicable RSR polluted soil reuse requirements and to Connecticut solid waste requirements.

Contaminant	**Soil Characterization Criteria**	**Groundwater Characterization Criteria**
Characteristically hazardous waste "**D codes**"	Non-hazardous if below levels in Toxicity Characteristic Table in 40 CFR 261.24 ("TC Table")[1]	Non-hazardous if below levels in Toxicity Characteristic Table in 40 CFR 261.24 ("TC Table")
Listed hazardous waste "**F,K,P,U codes**" See 40 CFR 261.33 for "**P**" & "**U**" See 40 CFR 261 Appendix VII to identify constituents for which "**F**" & "**K**" wastes are listed.	Non-hazardous if below the lower of A and B: **(A)** Industrial/Commercial Direct Exposure Criteria in RSR[2] **and** --------------- --------------- ----------- [choose one method from B]: **(B) either** TC Table[1] **or** 100 x GA Pollutant Mobility Criteria in RSR[3] **or** 100 x Groundwater Protection Criteria in RSR[4]	Non-hazardous if below 100 x GA Groundwater Protection Criteria in RSR

[1] via Toxicity Characteristic Leachate Procedure ("TCLP")
[2] via mass analysis
[3] via mass analysis or leachate analysis
[4] via leachate procedure (eg: TCLP or Synthetic Precipitation Leachate Procedure

STANDARD OPERATING PROCEDURE

SG-001 General Guidance on Soil Vapor Intrusion Evaluations

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1. Objective

The goal of a soil vapor intrusion evaluation is to assess whether complete exposure pathways of soil vapor to indoor air exist. A complete exposure pathway exists if vapors from constituents are migrating through various pathways into residential or commercial buildings at concentrations that may result in an unacceptable human health risk. If a complete exposure pathway does not exist, then further assessment of soil vapor intrusion is not required.

Depending on the status of investigation performed at the site it may be appropriate to approach an evaluation of soil vapor intrusion at different tiers. If little work has been performed relative to the potential for contaminants to affect soil vapor near a structure, then a screening level assessment is an appropriate first step. However, if a plume is well delineated and the potential for groundwater impacts, or nearby source material, to affect soil vapor near a potential receptor structure is well understood, then it may be more appropriate to directly develop and implement a soil vapor and/or indoor air sampling plan. To accommodate the potential varied states of knowledge when a vapor intrusion evaluation is required, a flexible approach is needed that incorporates the following elements.

- SOP SG-002 Soil Vapor Sample Collection
- SOP SG-003 Sub-Slab Soil Vapor Collection
- Indoor Air Sampling
- SOP SG-004 Ambient Air Sample Collection

Soil vapor intrusion evaluations should be approached on a site-specific basis and depending on the site-specific setting and proximity to impacted groundwater or source material, it may be appropriate to proceed in a hierarchical fashion through each tier of evaluation or a variety of tiers may be combined and implemented simultaneously. The SOPs presented in this SOP address each of these sampling procedures.

2. Execution

2.1. Implementation Triggers

Soil vapor intrusion evaluations may be implemented at various times based on event triggers throughout the Site Characterization (SC), Remedial Investigation (RI), and site remedial action plan. The following event triggers would require the implementation of this soil vapor intrusion investigation.

- Identification of a potential complete exposure pathway
- Private property owner request for sampling

- State or Federal administrative order

2.2. Factors Affecting Soil Vapor Intrusion

Prior to conducting a soil vapor intrusion assessment at a private property, an analysis of the factors contributing to the migration of soil vapor to indoor air should be conducted. The completion of this analysis should take into account the two types of factors: environmental and building factors.

2.2.1. Environmental Factors

Environmental factors include site specific conditions in the subsurface and above the ground surface that may affect the rate and direction at which soil vapor may migrate.

The soil and groundwater conditions between the contamination and the residential/commercial building should be evaluated and recorded in any soil vapor intrusion investigation. If the SC/RI has been completed, then the data are available for this review. If the SC/RI has not been completed, then at a minimum the nature and extent of impacted soil and/or groundwater between the site and the residential/commercial building should be defined.

After compiling the necessary site-specific data, that information should be reviewed to determine groundwater conditions at the site. The potential for man-made or natural preferential pathways for vapor migration in the vadose zone and/or for groundwater migration in the saturated zone should also be determined at this time.

- The depth to groundwater below the residential or commercial building will be determined. For example, in cases where groundwater intersects the foundation there is no vadose zone to collect a sub-slab sample. In cases where the groundwater is close to the foundation, there is a risk of causing/exacerbating groundwater intrusion through the foundation during periods of high groundwater.

Additional Site Observations

- Direction of groundwater flow from the contaminant source to the residential or commercial building;
- The location, depth, extent, and concentration of potential constituents in unsaturated soil and groundwater on the property; and,
- Presence of an overlying water bearing zone that does not have impacts beneath the residential or commercial building. An un-impacted shallow water zone will significantly retard or completely prohibit the potential for deeper impacted groundwater to affect soil vapor.
- Potential “smear zones” (residual non-aqueous phase liquid (NAPL) present at depths over which the water table fluctuates) should also be identified as they may also affect the rate of soil vapor migration.
- Location, depth, extent of NAPL, if present.

Soils which are highly organic, wet, and/or of low permeability should be identified. If these soils are present beneath a structure and above impacted groundwater or soil, they may effectively shield the building from potential vapor intrusion. Conversely, dry and porous soils underlying a building may provide a less inhibited soil vapor intrusion pathway. The limits of backfill surrounding residential or commercial building should be also noted.

2.2.2. Building Factors

Building Factors include the physical characteristics, such as structure, floor layout, air flow, and physical conditions. These conditions will be documented during the evaluation. The New York State Department of Health (NYSDOH) Center for Environmental Health's Indoor Air Quality Questionnaire and Building Inventory form is presented in Attachment A. At a minimum, the following information should be recorded.

- Building foundation construction characteristics (basement, footers, crawl spaces, etc), including potential preferential vapor intrusion pathways such as foundations cracks and utility penetrations.
- Basement wall materials (hollow block, stone, or poured concrete, etc.)
- Presence of an attached garage.
- Recent renovations to the building such as new paint or new carpet.
- Mechanical heating/cooling equipment that may affect air flow.
- Use and storage of petroleum products such as home heating oil storage tanks, underground storage tanks (USTs), or kerosene heaters.
- Recent use of petroleum-based finish or other products containing volatile organic compounds (VOCs).
- Areas of pavement on the property should also be identified in the event sub slab vapor sampling is not feasible or appropriate due to a high groundwater table. Paved areas could serve as surrogate locations in lieu of sub slab soil vapor sampling if high water table conditions exist.

The construction materials and integrity of the floor of the structure closest to the potential point of entry for soil vapor (basement level or first floor for slab-on-grade constructions) should be identified. In addition to the foundation type and integrity, this survey should note any preferential pathways (utility lines/pipes, sumps, etc.) that may exist within the bottom-most level of the structure.

The operation and presence of heating systems, including fireplaces and clothes dryers, may create a pressure differential between the structure and the outside environment, causing an increase of migration of soil vapor into the building. The NYSDOH guidance document suggests limiting indoor air sampling to the heating season (with the exception of immediate inhalation hazard situations), which is roughly defined as November 15th to March 31st. However, sampling may be completed at any time during the year for any sampling completed in response to a request by a community member. In situations where non-heating season sampling has taken place, consideration should be given to re-sampling the property within the heating season. The operation of HVAC systems should be noted on the building inventory form (Attachment A).

During the initial building assessment and visit, and again when sub-slab soil vapor and/or indoor air sampling are performed, differential pressure measurements between indoor air, ambient air, and soil vapor should be collected and recorded to document the potential effect building conditions have on soil vapor migration.

2.2.3. Property Visit

A property visit will be conducted prior to sampling. During the site visit, technical representatives will complete site visit observations, inventories and occupant questionnaire forms (Appendix A). During the course of the interview, observations will be made to identify any potential areas or issues of concern or the presence of any odors, and if sampling appears necessary, identify potential sampling points and general building characteristics. The questionnaire is also used to identify potential sources and activities that may interfere with sampling results. The questionnaire will specifically address the activities of the occupant's (e.g., smoking, work place activities) that may contribute to indoor air concentrations of volatile chemicals.

The responses to the questionnaire will be evaluated and a determination will be made as to whether additional investigation is required.

2.2.4. Chemical Inventory

The chemical inventory complements the identification of the building factors affecting soil vapor intrusion. The chemical inventory will identify the occurrence and use of chemicals and products throughout the building. These products can be used to develop an indoor environmental profile. A separate inventory should be prepared for each room on the floor being tested as well as any other indoor areas physically connected to the areas being tested. Inventories will include product names, chemical ingredients, or both. If possible, photographs of the products should be taken of the location and condition of the inventoried products and the photographic records should be indexed with the inventory records. The products inventory can also be used to document odors and if possible portable vapor monitoring equipment measurements should be taken and recorded. A product inventory will be repeated prior to each round of testing at the building. If available, the volatile ingredients should be recorded for each product. If the ingredients are not listed on the label, record the manufacturer's name and address or phone number if available. The product inventory form is presented in Attachment A.

2.2.5. Water Table Conditions and Vapor Intrusion Assessment Approach

Sub-slab soil vapor sampling is intended to evaluate the potential for vapor intrusion. However, there are circumstances where collection of sub-slab soil vapor samples may not be feasible if the water table is near, at, or above the elevation of a buildings foundation slab. An evaluation of the water table elevation relative to the building slab should be made before attempting to install a sub-slab vapor sampling point.

If the water table is found to be sufficiently below the building slab and sub-slab vapor sampling can be performed, then the following Low Water Table Scenario should be followed.

2.2.5.1. Low Water Table Scenario

If the water table elevation is lower than the basement slab, then the following samples should be collected.

- Sub-slab soil vapor samples
- Indoor air samples from basement level
- Indoor air samples from main living space (First floor)
- Outdoor ambient air sample

If the water table is deemed to be at too high of an elevation to allow sub-slab vapor sampling, then alternate means of evaluating the potential for vapor intrusion must be employed. If a building has a groundwater sump, the sump should be evaluated to determine if there is water present in the sump and if that water is representative of groundwater or if the water is stagnant. If water in the sump represents groundwater, then a sample from the sump should be collected. The High Water Scenario below summarizes the methods to evaluate potential vapor intrusion if sub-slab vapor sampling cannot be conducted due to high groundwater conditions.

2.2.5.2. High Water Table Scenario

If the water table elevation is higher than the basement slab, then the following tasks should be performed.

- Determine if a sump pump is present and actively pumping water.
- If sump is actively pumping, collect a sample of groundwater from the sump.
- Collect an indoor air sample from basement level.
- Collect an indoor air sample from main living space (first floor).
- Identify exterior soil vapor sample location near foundation (outside of foundation backfill) and preferably beneath a surrogate vapor cap (e.g. paved driveway, patio).
- Collect soil vapor samples from exterior soil vapor location
- Collect an outdoor ambient air sample.

3. References

USEPA modified Method TO-15 and helium via ASTM D-1945.

Section 2.7.1 of the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York*, dated October 2006.*

4. Attachments

Attachment A - NYSDOH Center for Environmental Health’s Indoor Air Quality Questionnaire and Building Inventory Form

5. Contact

Chris Berotti

ATTACHMENT A

Off-Site Property Sampling Documentation Form

Property Location/Address: ______________________________

Property: _____________________________

Sampling Date: _____________________________

Property Location/Address: ______________________________
Property: ______________________________
Sampling Date: ______________________________

Preparer’s Name: ________________________________ Date/Time Prepared: ______________
Preparer’s Affiliation: ________________________________ Phone No.: __________________
Purpose of Investigation:____

1. OCCUPANT Interviewed: Yes ☐ No ☐

Last Name: _____________________________ First Name: ____________________________
Address: ____
County: _______________________
Home Phone: ___________________________ Office Phone: __________________________
Number of Occupants/persons at this location _______ Age of Occupants__________________

2. OWNER OR LANDLORD (Check if same as occupant __) Interviewed: Yes ☐ No ☐

Last Name: _____________________________ First Name: ____________________________
Address: ____
County: _______________________
Home Phone: ___________________________ Office Phone: __________________________

3. CONTACT NAME (Check if same as Occupant ____, Owner ____)

Last Name: _____________________________ First Name: ____________________________
Address: ____
County: _______________________
Home Phone: ___________________________ Office Phone: __________________________

4. PROPERTY LOCATION: ____

Relative to Site:
Direction _________ Direction to Nearest Cross Street: __________
Distance _________ Distance to Nearest Cross Street: __________

Surrounding Land Use:
North: _________________ East: _________________
South: _________________ West: _________________

Property Location/Address: _____________________________
Property: ____________________________
Sampling Date: ____________________________

5. PROPERTY BOUNDARIES

Delineate the boundaries of the property (on a separate project map, outline property location, private well location, septic/leachfield location, groundwater flow, compass direction, windrose.)

6. BUILDING CONSTRUCTION

Type of Building (Circle appropriate response)

Residential
Industrial
School
Church
Commercial/Multi-use
Other: _________________

If the property is residential, type? (Circle appropriate response)

Ranch
Raised Ranch
Cape Cod
Duplex
Modular
2-Family
Split Level
Contemporary
Apartment House
Log Home
3-Family
Colonial
Mobile Home
Townhouses/Condos
Other:_______________

If multiple units, how many? ________

If the property is commercial, type?

Business Type(s) _____________________________________

Does it include residences (i.e., multi-use)? Yes ☐ No ☐

If yes, how many? ______

Other characteristics:

Number of floors______ Building age______

Is the building insulated? Yes ☐ No ☐ How air tight? Tight / Average / Not Tight

Construction Material ___________________________________

7. BASEMENT AND CONSTRUCTION CHARACTERISTICS

Does the building have a basement and/or crawl space, or is it slab-on-grade construction?

____

Describe the construction of the basement/crawl space (Circle all that apply)

a. Above grade construction: wood frame concrete stone brick

b. Basement type: full crawlspace slab other ________

Property Location/Address: ______________________________
Property: _____________________________
Sampling Date: _____________________________

c. Basement floor:	concrete	dirt	stone	other ________
d. Basement floor surface:	uncovered	covered	covered with ____________	
e. Concrete floor:	unsealed	sealed	sealed with _____________	
	unpainted	painted	painted with ____________	
f. Foundation walls:	poured	block	stone	other ________
g. Foundation walls:	unsealed	sealed	sealed with _____________	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	

Does your basement have a sump? Yes ☐ No ☐

Is, is there water in the sump? Yes ☐ No ☐

Describe sump conditions:____

____

Have you observed standing water in your basement? Yes ☐ No ☐

If so, what is the frequency of this observation? _____________During rain events? ☐

Have you observed sheen atop the standing water? Yes ☐ No ☐

Basement/Lowest level depth below grade: ________(feet)

Are there any cracks in the floor of your basement? Yes ☐ No ☐

Description: ____

____

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

Description: ____

____

What activities occur in the finished basement?

Description: ____

____

Approximately how many hours per day (or week) do you spend in your basement? __________

8. HEATING, VENTING AND AIR CONDITIONING

Type of heating system(s) used in building: (Circle all that apply – note primary)

Property Location/Address: ______________________________
Property: ______________________________
Sampling Date: ______________________________

Hot Air Circulation
Electric Baseboard
Space Heaters

Hot Water Baseboard
Heat Pump
Radiant Floor

Steam Radiation
Wood Stove
Outdoor wood boiler

Unvented Kerosene Heater Other ______________________________

The primary type of fuel used is:

Fuel Oil
Kerosene
Wood

Natural Gas
Propane
Coal

Electric
Solar
Other? ____________________

Time of use of each type of heating? ____

Domestic hot water tank fueled by: ____

Boiler/furnace located in: Basement Outdoors Main Floor Other________________

Air conditioning: Central Air Window units Open Windows None

Are there air distribution ducts present? Yes ☐ No ☐

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

____

____

____

____

Type of insulation (e.g. blown, fiber, etc.)? ____

Does building have energy efficient windows (e.g. double paned) Yes ☐ No ☐

Was weather-stripping recently added/upgraded? Yes ☐ No ☐

Particleboard used in construction? Yes ☐ No ☐

9. OCCUPANCY

Property Location/Address: ______________________________
Property: ____________________________
Sampling Date: ____________________________

Level	General Use of Each Floor (e.g., family room, bedroom, laundry, workshop, storage)
Basement	____
1st Floor	____
2nd Floor	____
3rd Floor	____
4th Floor	____

10. BULK PETROLEUM STORAGE

Aboveground storage tank on the property Yes ☐ No ☐

If yes, how old is tank? ________________ Condition? ___________________

Last inspected? ________________ Location: _____________________

Describe conduits to building (type, location, and entry portal condition): __________________

____

Underground storage tank on the property. Yes ☐ No ☐

If yes, how old is tank? ________________ Condition? ___________________

Last inspected? ________________ Location: _____________________

Describe conduits to building (type, location, and entry portal condition): __________________

____

11. WATER AND SEWAGE

Water Supply:

Public Water Drilled Well Driven Well Dug Well Other _______________

Is there use of groundwater water for irrigation purposes? Yes ☐ No ☐

Sewage Disposal:

Public Sewer Septic Tank Leach Field Dry Well Other _______________

12. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Yes ☐ No ☐

If not, is there a separate garage or carport? Yes ☐ No ☐

b. Does the garage have a separate heating unit? Yes ☐ No ☐ NA ☐

Property Location/Address: ______________________________
Property: _____________________________
Sampling Date: _____________________________

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, ATV, car)

Yes ☐ No ☐ NA ☐ Please specify__________________

Is gasoline stored in the garage? Yes ☐ No ☐

Quantity? ________________

d. Has the building ever had a fire? Yes ☐ No ☐

When?_________________

e. Is a kerosene or unvented gas space heater present? Yes ☐ No ☐

Where? ________________

f. Is there a workshop or hobby/craft area? Yes ☐ No ☐

Where & Type? ________________

g. Is there smoking in the building? Yes ☐ No ☐

How frequently? _______________

h. Have cleaning products been used recently? Yes ☐ No ☐

When & Type? ________________

i. Have cosmetic products been used recently? Yes ☐ No ☐

When & Type? ________________

j. Has painting/staining been done in the last 6 months? Yes ☐ No ☐

Where & When? _______________

Is house paint stored inside? Yes ☐ No ☐

Where? _______________

k. Is there new carpet, drapes or other textiles? Yes ☐ No ☐

Where & When? _______________

l. Have air fresheners been used recently? Yes ☐ No ☐

When & Type? ________________

m. Is there a kitchen exhaust fan? Yes ☐ No ☐

If yes, where vented?____________

n. Is there a bathroom exhaust fan? Yes ☐ No ☐

If yes, where vented?____________

o. Is there a clothes dryer? Yes ☐ No ☐

If yes, is it vented outside? Yes ☐ No ☐

p. Has there been a pesticide/chemical fertilizer application? Yes ☐ No ☐

Property Location/Address: ______________________________
Property: _____________________________
Sampling Date: _____________________________

When & Type?____

Conducted by Owner or Private Yard Service ___________________________

Is yard waste/trash burned on-site? Yes ☐ No ☐

Do any of the building occupants use solvents at work? Yes ☐ No ☐

(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? ____

If yes, are their clothes washed at work? Yes ☐ No ☐

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, Use dry-cleaning regularly (weekly)

Use dry-cleaning infrequently (monthly or less)

Yes, work at a dry-cleaning service

No

Unknown

Is there a radon mitigation system for the building/structure? Yes ☐ No ☐

Date of Installation: ____________

Is the system active or passive? Active ☐ Passive ☐

Are there any recent/past improvements to building? Yes ☐ No ☐

Interior painting? ____

Any landscaping improvements that involved bringing fill on site? Yes ☐ No ☐

Other ____

Approximately when (how long ago) did these improvements occur? ______________

Does anyone living here engage in any of the following activities or hobbies?

a. Art projects (e.g. oil painting, ceramics, pottery, stained glass, metal sculpture)

Yes ☐ No ☐

Name: ____________________________ Age: _________ Sex: _____________

Name: ____________________________ Age: _________ Sex: _____________

Property Location/Address: ______________________________
Property: ______________________________
Sampling Date: ______________________________

b. Furniture refinishing Yes ☐ No ☐

Name: ______________________________ Age: _________ Sex: ______________

Name: ______________________________ Age: _________ Sex: ______________

c. Model building(e.g. planes,boats,cars) Yes ☐ No ☐

Name: ______________________________ Age: _________ Sex: ______________

Name: ______________________________ Age: _________ Sex: ______________

d. Gardening Yes ☐ No ☐

Name: ______________________________ Age: _________ Sex: ______________

Name: ______________________________ Age: _________ Sex: ______________

e. Automotive work Yes ☐ No ☐

Name: ______________________________ Age: _________ Sex: ______________

Name: ______________________________ Age: _________ Sex: ______________

f. Ammunition reloading Yes ☐ No ☐

Name: ______________________________ Age: _________ Sex: ______________

Name: ______________________________ Age: _________ Sex: ______________

Is there a wood burning stove? Yes ☐ No ☐

If so, how frequently is it used?

____

____

Is there a barbeque grill? Yes ☐ No ☐

If so, how frequently is it used? What is the type of fuel?

____

____

Has the building ever had fumigation? Yes ☐ No ☐

Property Location/Address: ____________________________
Property: ___________________________
Sampling Date: ___________________________

If so, when and how frequently? Type?

____

____

13. ODOR SUMMARY

Have the occupants observed any unusual odors? ____________________________________

____

____

____

____

History of odor observation – date of onset, duration, severity, etc.

____

____

____

____

____

____

____

14. PRODUCT INVENTORY

Record the specific products found in building that have the potential to affect indoor air quality on the attached product inventory form.

15. INDOOR SKETCH

Draw a plan view sketch (on grid paper) of the basement, first floor, and any other floor where sampling was conducted in the building as well as any outdoor sample locations. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Property Location/Address: ______________________________
Property: _____________________________
Sampling Date: _____________________________

Product Inventory
Off-Site Property Sampling Documentation
Soil Vapor Intrusion Investigation

Property Address:	**Performed by:**
Date of Inventory:	**Field Instrument Make & Model:**

Location	**Product Description**	**Size (units)**	**Condition ***	**Chemical Ingredients**	**Field Instrument Reading (units)**	**Photo ** Y/N**

Notes

* Describe the condition of the product containers as Unopened (UO), Used (U), or Deteriorated (D)

** Photographs of the front and back of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

STANDARD OPERATING PROCEDURE

SG-003 Sub-slab Soil Vapor Collection

1. Objective

This procedure outlines the general steps to collect sub-slab soil vapor samples. The site-specific Sampling and Analysis Work Plan should be consulted for proposed sample locations, sample depths, and sampling duration.

2. Execution

Permanent and temporary sub-slab soil vapor probes will be installed using the procedures outlined below. All sub-slab soil vapor probes will be installed using a direct-push drill rig (e.g., Geoprobe® or similar), hand auger, or manually using a slide hammer.

2.1. Document Field Conditions

Document pertinent field conditions prior to installation of any probe locations.

- Record weather information (precipitation, temperature, barometric pressure, relative humidity, wind speed, and wind direction) at the beginning of the sampling event. Record substantial changes to these conditions that may occur during the course of sampling. The information may be measured with on-site equipment or obtained from a reliable source of local measurements (e.g., a local airport). Data should be obtained for the past 24 to 48 hours. Record the indoor conditions (temperature, heating/cooling system active, windows open/closed, etc.).
- Measure the differential pressure at the building. Measure the indoor and outdoor barometric pressure using a high resolution device. Where possible, measure the sub-slab barometric pressure at the sampling point.
- If sampling near a commercial or industrial building, uses of volatile chemicals during normal operations of the facility should be identified.
- Indoor floor plan sketches should be drawn that include the floor layout with sampling locations, chemical storage areas, garages, doorways, stairways, location of basement sumps or subsurface drains and utility perforations through building foundations, heating, ventilating and air conditioning (HVAC) system air supply and return registers, compass orientation (North), footings that create separate foundation sections, and any other pertinent information should be completed;
- Outdoor plot sketches should be drawn that include the building site, area streets, outdoor air sampling locations (if applicable), compass orientation (north), and paved areas.
- Any pertinent observations should be recorded, such as odors and readings from field instrumentation.

2.2. Sub-Slab Soil Vapor Point Installation Specifications

Each sub-slab soil vapor point will be constructed as follows:

- Drill an approximately 3/8-inch hole through the slab. If necessary, advance the drill bit 2-3 inches into the sub-slab material to create an open cavity.
- Using dedicated inert Teflon or stainless steel tubing of laboratory or food grade quality, insert the inlet of the tubing to the specified depth below the slab. For permanent installation, only stainless steel tubing and fittings will be used.
- For permanent point installations, the annular space surrounding the vapor probe tip will be filled with a porous backfill material (e.g., glass beads or coarse silica sand) to cover 1-inch of the above the tip of the probe.
- Seal the annular space between the hole and the tubing using an inert non-shrinking sealant such as melted 100% beeswax, permagum grout, putty, etc. For permanent installations, cement may be used.
- For permanent points, a protective casing will be set around the top of the point tubing and grouted in place minimize infiltration of water or ambient air, as well as to prevent accidental damage to he permanent point.
- The tubing top will be fitted with a Swagelok® and cap to prevent moisture and foreign material from infiltrating the tubing.

In cases where sub-slab sampling is impractical or infeasible, a surrogate location (attached garage, concrete patio, asphalt driveway, etc.) may be used if it is representative of sub-slab conditions. In surrogate locations, the vapor sampling point may be installed in accordance with SOP SG-002 Soil Vapor Collection.

2.3. Sub-Slab Soil Vapor Sample Collection

Sub-slab soil vapor samples will be collected as indicated in the site-specific Sampling and Analysis Work Plan and in accordance with state or Federal guidance documents. Specifically, sub-slab samples from the points will be collected as follows:

- Document pertinent field conditions prior to sampling as described above.
- A suction pump will be used to remove one to three implant volumes from the sub-slab soil vapor points prior to sampling. Include the volume of any additional tubing added to affix sampling equipment and the annular space between the probe and the native material if sand or glass beads were used.
- The purge rate shall not exceed 0.2 liters per minute.
- Samples will be collected in an individually laboratory certified clean 1-liter SUMMA® canister (or equivalent) using a certified flow controller calibrated for the anticipated sample duration (4 minutes). The regulator flow rate will not exceed 0.2 liters per minute.
- A helium tracer gas will be used to identify any potential migration or short circuiting of ambient air during sampling as described below.

- Remove the protective brass plug from the canister. Connect the pre-calibrated flow controller to the canister.
- Record the identification numbers for the canister and flow controller.
- Record the initial canister pressure on the vacuum gauge (check equipment-specific instructions for taking this measurement). A canister with a significantly different pressure than originally recorded by the testing laboratory should not be used for sampling. Record these numbers and values on the chain-of-custody form for each sample.
- Connect the tubing from the sub-slab soil vapor probe to the flow controller.
- Open the valve on the canister. Record the time that the valve was opened (beginning of sampling) and the canister pressure on the vacuum gauge.
- Photograph the canister and the area surrounding the canister.
- Monitor the vacuum pressure in the canister routinely during sampling.
- Stop sample collection when the canister still has a minimum amount of vacuum remaining. Check with the laboratory supplying the canister and flow controller for the ideal final vacuum pressure. Typically, the minimum vacuum is between 2 and 5 inches of mercury, but not zero. If there is no vacuum remaining, the sample will be rejected and collected again in a new canister.
- Record the final vacuum pressure and close the canister valve. Record the date and time that sample collection was stopped.
- Remove the flow controller from the canister and replace the protective brass plug.
- Attach labels/tags (sample name, time/date of sampling, etc.) to the canister as directed by the laboratory.
- Place the canister and other laboratory-supplied equipment in the packaging provided by the laboratory.
- Enter the information required for each sample on the chain-of-custody form, making sure to include the identification numbers for the canister and flow controller, and the initial and final canister pressures on the vacuum gauge.
- Samples will be analyzed for volatile organic compounds (VOCs) and naphthalene via modified USEPA modified Method TO-15 and helium via ASTM D-1945
- Include the required copies of the chain-of-custody form in the shipping packaging, as directed by the laboratory. Maintain a copy of the chain-of-custody for the project file.
- Deliver or ship the samples to the laboratory as soon as practical.
- All laboratory analytical data will be validated by a data validation professional in accordance with the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, January 2005 and the USEPA Region II Standard Operating Procedure (SOP) for the Validation of Organic Data modified to accommodate the USEPA Method TO-15 and natural gas analysis by ASTM D-1945.

2.4. Tracer Gas Evaluation

The tracer gas evaluation provides a means to evaluate the integrity of the sub-slab soil vapor probe seal and assess the potential for introduction of indoor air into the sub-slab soil vapor sample. A tracer gas evaluation should be conducted on the each temporary sub-slab soil vapor probe to be sampled in a sampling event. A tracer gas evaluation should be conducted on the each permanent sub-slab soil vapor probe during the initial sampling event and a minimum of 10% of the sub-slab soil vapor probes during subsequent sampling events.

The following tracer gas evaluation procedure uses helium as a tracer gases which can be measured through laboratory analysis or by a portable detector.

- Retain the tracer gas around the sub-slab sample probe by filling an air-tight chamber (such as a plastic bucket) positioned over the sample location.
- Make sure the chamber is suitably sealed to the ground surface.
- Introduce the tracer gas into the chamber. The chamber will have tubing at the top of the chamber to introduce the tracer gas into the chamber and a valved fitting at the bottom to let the ambient air out while introducing tracer gas. Close the valve after the chamber has been enriched with tracer gas at concentrations >10%.
- The chamber will have a gas-tight fitting or sealable penetration to allow the sub-slab soil vapor sample probe tubing to pass through and exit the chamber.
- After the chamber has been filled with tracer gas, attach the sample probe tubing to a pump that will be pre-calibrated to extract sub-slab soil vapor at a rate of no more than 0.2 lpm. Purge the tubing using the pump. Calculate the volume of air in the tubing and purge one to three tubing volumes prior collecting an analytical sample or using a portable device to measuring the tracer gas concentration.
- Samples collected from vapor points during a tracer gas evaluation will be analyzed for VOCs and naphthalene via modified USEPA modified Method TO-15 and helium via ASTM D-1945.
- Alternately, a tracer gas detector may be used to verify the presence of the tracer gas in the chamber by affixing it to the valve fitting at the bottom of the chamber. The tracer gas detector may also be used to measure the tracer gas concentration in the pump exhaust during purging. If used, then record the tracer gas concentrations in the chamber and in the soil vapor sample.
- Based on the concentrations of the tracer gas detected during analysis or direct measurement, determine whether additional gas tracer evaluations are necessary:

If the evaluation on a probe indicates a high concentration of tracer gas in the sample (>10% of the concentration of the tracer gas in the chamber), then the surface seal is not sufficient and requires improvement via repair or replacement prior to commencement subsequent sample collection.

A non-detectable level of tracer gas is preferred; however, if the evaluation on a probe indicates a low potential for introduction of ambient air into the sample (<10% of the concentration of the tracer gas in the chamber), then proceed with the soil vapor sampling. While lower concentrations of tracer gas are acceptable, the impact of the detectable leak on sample results should be evaluated in the sampling report.

3. References

USEPA modified Method TO-15 and helium via ASTM D-1945.

Section 2.7.1 of the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

4. Contact

Chris Berotti

Attachment 2
COC

YORK
ANALYTICAL LABORATORIES INC

Field Chain-of-Custody Record

YORK Project Number

York Analytical Laboratories, Inc. (YORK)'s Standard Terms & Conditions are listed on the back side of this document. This legal document serves as your written authorization for YORK to proceed with the analyses requested below. Your signature binds you to YORK's Standard Terms & Conditions.

120 Research Drive Stratford, CT 06615 132-02 89th Ave Queens, NY 11418 56 Church Hill Rd. #2 Newtown, CT 06470 2161 Whitesville Rd Toms River, NJ 08755 clientservices@yorklab.com 800-306-YORK

Page ______ of ______

Report To:	Invoice To:
Company:	Company:
Address:	Address:
Phone.:	Phone.:
Contact:	Contact:
E-mail:	E-mail:

YOUR Project Name / Number

PO Number

Samples Collected From

NY	☐	CT	☐	**Other:** (please specify)
NJ	☐	PA	☐	

Turn-Around Time

- RUSH - Next Day ☐
- RUSH - Two Day ☐
- RUSH - Three Day ☐
- RUSH - Four Day ☐
- RUSH - Five Day ☐
- Standard (6-9 Day) ☐
- PFAS Standard 7-10 Day ☐

Please print clearly and legibly. All information must be complete. Samples will not be logged in and the turn-around-time clock will not begin until any questions by YORK are resolved.

Matrix Codes

- S - soil/solid/sludge
- GW - groundwater
- DW - drinking water
- SW - surface water
- WW - wastewater
- O - Oil
- Other

Samples Collected by: (print AND sign your name)

Preservative
(please list number of containers)

Analyses Requested

Sample Identification	Date	Time	Matrix	Unpreserved	HCl (hydrochloric acid)	MeOH (methanol)	HNO_3 (nitric acid)	H_2SO_4 (sulfuric acid)	NaOH (sodium hydroxide)	$Na_2S_2O_3$ (sodium thio.)	Trizma	Ammonium Acetate	Other:												Grab or Comp. G/C

Report Type (circle)

- QA Report
- Summary (Results Only)
- NY ASP B Package
- NJ Reduced
- NJ DKQP
- NJ Full
- CT RCP

EDD Type (circle)

- EQuIS (standard)
- NYSDEC EQuIS
- NJDEP SRP Haz Site
- Standard Excel
- CMDP
- Other:

Regulatory Comparative

Compared to the following Regulation(s): (please fill in)

Field Filtered ☐

Lab Filtered ☐

Comments:

Samples iced/chilled at time of lab pickup? circle Yes or No

Lab Sample Receiving Checklist (to be completed by the receiving laboratory only) Circle Y / N

Custody Seals: Y / N Containers Intact: Y / N COC/Labels Agree: Y / N Preservation Confirmed: Y / N
COC Complete: Y / N COC Received: Y / N Appropriate Sample Volumes: Y / N Appropriate Sample Containers: Y / N
Cooler Temperature Confirmed: Y / N Samples Submitted within Holding Times: Y / N Corrective Action Form Required: Y / N

1. Samples Relinquished by / Company	Date/Time	1. Samples Received by / Company	Date/Time	2. Samples Relinquished by / Company	Date/Time
2. Samples Received by / Company	Date/Time	3. Samples Relinquished by / Company	Date/Time	3. Samples Received by / Company	Date/Time
4. Samples Relinquished by / Company	Date/Time	4. Samples Received by / Company	Date/Time	Samples Received in LAB by	Date/Time Temperature Degrees C

APPENDIX I

LABORATORY MINIMUM REPORTING LIMITS

Analytical Method Information

Printed: 07/29/2024 10:08 pm

Volatile Organics, 8260 - Comprehensive in Soil (EPA 8260D)

Preservation: Cool 4°C

Container: 03_5035 Vial Set **Amount Required:** 20 g. **Hold Time:** 14 days

		Reporting	Surrogate	Duplicate	----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Limit**	**%Rec**	**RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
1,1,1,2-Tetrachloroethane	2.5	5.0 ug/kg			15-161	33	75-129	30
1,1,1-Trichloroethane	2.5	5.0 ug/kg			42-145	30	71-137	30
1,1,2,2-Tetrachloroethane	2.5	5.0 ug/kg			16-167	56	79-129	30
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	2.5	5.0 ug/kg			11-160	31	58-146	30
1,1,2-Trichloroethane	2.5	5.0 ug/kg			44-145	40	83-123	30
1,1-Dichloroethane	2.5	5.0 ug/kg			46-142	36	75-130	30
1,1-Dichloroethylene	2.5	5.0 ug/kg			30-153	31	64-137	30
1,1-Dichloropropylene	2.5	5.0 ug/kg			40-133	28	77-127	30
1,2,3-Trichlorobenzene	2.5	5.0 ug/kg			10-157	47	81-140	30
1,2,3-Trichloropropane	2.5	5.0 ug/kg			38-155	48	81-126	30
1,2,4,5-Tetramethylbenzene	2.5	5.0 ug/kg			10-138	44	63-156	30
1,2,4-Trichlorobenzene	2.5	5.0 ug/kg			10-151	52	80-141	30
1,2,4-Trimethylbenzene	2.5	5.0 ug/kg			10-170	242	84-125	30
1,2-Dibromo-3-chloropropane	2.5	5.0 ug/kg			36-138	54	74-142	30
1,2-Dibromoethane	2.5	5.0 ug/kg			40-142	39	86-123	30
1,2-Dichlorobenzene	2.5	5.0 ug/kg			10-147	52	85-122	30
1,2-Dichloroethane	2.5	5.0 ug/kg			48-133	32	71-133	30
1,2-Dichloropropane	2.5	5.0 ug/kg			47-141	37	81-122	30
1,3,5-Trimethylbenzene	2.5	5.0 ug/kg			10-150	62	82-126	30
1,3-Dichlorobenzene	2.5	5.0 ug/kg			10-144	51	84-124	30
1,3-Dichloropropane	2.5	5.0 ug/kg			43-142	36	83-123	30
1,4-Dichlorobenzene	2.5	5.0 ug/kg			10-160	52	84-124	30
1,4-Dioxane	50	100 ug/kg			10-191	196	10-228	30
2,2-Dichloropropane	2.5	5.0 ug/kg			38-130	31	67-136	30
2-Butanone	2.5	5.0 ug/kg			10-189	67	58-147	30
2-Chlorotoluene	2.5	5.0 ug/kg			14-144	49	78-127	30
2-Hexanone	2.5	5.0 ug/kg			10-181	60	70-139	30
4-Chlorotoluene	2.5	5.0 ug/kg			15-138	39	79-125	30
4-Methyl-2-pentanone	2.5	5.0 ug/kg			10-166	47	72-132	30
Acetone	5.0	10 ug/kg			10-196	150	36-155	30
Acrolein	5.0	10 ug/kg			10-192	128	10-238	30
Acrylonitrile	2.5	5.0 ug/kg			13-161	48	66-141	30
Benzene	2.5	5.0 ug/kg			43-139	64	77-127	30
Bromobenzene	2.5	5.0 ug/kg			23-142	44	77-129	30
Bromochloromethane	2.5	5.0 ug/kg			38-145	30	74-129	30
Bromodichloromethane	2.5	5.0 ug/kg			38-147	37	81-124	30
Bromoform	2.5	5.0 ug/kg			29-156	51	80-136	30
Bromomethane	2.5	5.0 ug/kg			10-166	42	32-177	30
Carbon disulfide	2.5	5.0 ug/kg			10-131	36	10-136	30
Carbon tetrachloride	2.5	5.0 ug/kg			35-145	31	66-143	30
Chlorobenzene	2.5	5.0 ug/kg			21-154	32	86-120	30
Chloroethane	2.5	5.0 ug/kg			15-160	40	51-142	30
Chloroform	2.5	5.0 ug/kg			47-142	29	76-131	30
Chloromethane	2.5	5.0 ug/kg			10-159	31	49-132	30
cis-1,2-Dichloroethylene	2.5	5.0 ug/kg			42-144	30	74-132	30
cis-1,3-Dichloropropylene	2.5	5.0 ug/kg			18-159	39	81-129	30
Cyclohexane	2.5	5.0 ug/kg			70-130	30	70-130	30
Dibromochloromethane	2.5	5.0 ug/kg			10-179	41	10-200	30
Dibromomethane	2.5	5.0 ug/kg			47-143	41	83-124	30
Dichlorodifluoromethane	2.5	5.0 ug/kg			10-145	34	28-158	30
Ethyl Benzene	2.5	5.0 ug/kg			11-158	42	84-125	30
Hexachlorobutadiene	2.5	5.0 ug/kg			10-158	45	83-133	30
Isopropylbenzene	2.5	5.0 ug/kg			10-162	57	81-127	30

Analytical Method Information

(Continued)

Volatile Organics, 8260 - Comprehensive in Soil (EPA 8260D) (Continued)

		Reporting	Surrogate	Duplicate	----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Limit**	**%Rec**	**RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
Methyl acetate	2.5	5.0 ug/kg			10-149	64	41-143	30
Methyl tert-butyl ether (MTBE)	2.5	5.0 ug/kg			42-152	47	74-131	30
Methylcyclohexane	2.5	5.0 ug/kg			70-130	30	70-130	30
Methylene chloride	5.0	10 ug/kg			28-151	49	57-141	30
Naphthalene	2.5	10 ug/kg			10-158	95	86-141	30
n-Butylbenzene	2.5	5.0 ug/kg			10-162	96	80-130	30
n-Propylbenzene	2.5	5.0 ug/kg			10-155	56	74-136	30
o-Xylene	2.5	5.0 ug/kg			10-158	51	83-123	30
p- & m- Xylenes	5.0	10 ug/kg			10-156	47	82-128	30
p-Diethylbenzene	2.5	5.0 ug/kg			10-146	39	70-144	30
p-Ethyltoluene	2.5	5.0 ug/kg			10-135	40	84-123	30
p-Isopropyltoluene	2.5	5.0 ug/kg			10-147	60	85-125	30
sec-Butylbenzene	2.5	5.0 ug/kg			10-157	56	83-125	30
Styrene	2.5	5.0 ug/kg			13-171	39	86-126	30
tert-Butyl alcohol (TBA)	2.5	5.0 ug/kg			34-179	35	70-130	30
tert-Butylbenzene	2.5	5.0 ug/kg			10-160	79	80-127	30
Tetrachloroethylene	2.5	5.0 ug/kg			30-167	33	80-129	30
Toluene	2.5	5.0 ug/kg			21-160	50	85-121	30
trans-1,2-Dichloroethylene	2.5	5.0 ug/kg			29-153	30	72-132	30
trans-1,3-Dichloropropylene	2.5	5.0 ug/kg			18-155	30	78-132	30
trans-1,4-dichloro-2-butene	2.5	5.0 ug/kg			17-154	30	75-135	30
Trichloroethylene	2.5	5.0 ug/kg			24-169	30	84-123	30
Trichlorofluoromethane	2.5	5.0 ug/kg			35-142	30	62-140	30
Vinyl acetate	2.5	5.0 ug/kg			10-119	82	67-136	30
Vinyl Chloride	2.5	5.0 ug/kg			12-160	35	52-130	30
Xylenes, Total	7.5	15 ug/kg						
Chlorodifluoromethane (Freon 22)	2.5	5.0 ug/kg				30		30
Surr: SURR: 1,2-Dichloroethane-d4			77-125					
Surr: SURR: Toluene-d8			85-120					
Surr: SURR: p-Bromofluorobenzene			76-130					
ISTD: Fluorobenzene								
ISTD: Chlorobenzene-d5								
ISTD: 1,2-Dichlorobenzene-d4								

Analytical Method Information

(Continued)

Volatile Organics, 8260 - Comprehensive in Water (EPA 8260D)

Preservation: Add HCl to pH<2; Store cool at 4°C

Container: 00_40mL Clear Vial (pre-pres.) HCl; Cool t **Amount Required:** 80 mL **Hold Time:** 14 days

					----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Reporting Limit**	**Surrogate %Rec**	**Duplicate RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
1,1,1,2-Tetrachloroethane	0.20	0.50 ug/L			45-161	30	82-126	30
1,1,1-Trichloroethane	0.20	0.50 ug/L			70-146	30	78-136	30
1,1,2,2-Tetrachloroethane	0.20	0.50 ug/L			74-121	30	76-129	30
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.20	0.50 ug/L			21-217	30	54-165	30
1,1,2-Trichloroethane	0.20	0.50 ug/L			59-146	30	82-123	30
1,1-Dichloroethane	0.20	0.50 ug/L			54-146	30	82-129	30
1,1-Dichloroethylene	0.20	0.50 ug/L			44-165	30	68-138	30
1,1-Dichloropropylene	0.20	0.50 ug/L			82-134	30	83-133	30
1,2,3-Trichlorobenzene	0.20	0.50 ug/L			40-161	30	40-130	30
1,2,3-Trichloropropane	0.20	0.50 ug/L			74-127	30	77-128	30
1,2,4,5-Tetramethylbenzene	0.20	0.50 ug/L			27-190	30	85-140	30
1,2,4-Trichlorobenzene	0.20	0.50 ug/L			41-161	30	65-137	30
1,2,4-Trimethylbenzene	0.20	0.50 ug/L			72-129	30	82-132	30
1,2-Dibromo-3-chloropropane	0.20	0.50 ug/L			31-151	30	45-147	30
1,2-Dibromoethane	0.20	0.50 ug/L			75-125	30	83-124	30
1,2-Dichlorobenzene	0.20	0.50 ug/L			63-122	30	79-123	30
1,2-Dichloroethane	0.20	0.50 ug/L			68-131	30	73-132	30
1,2-Dichloropropane	0.20	0.50 ug/L			77-121	30	78-126	30
1,3,5-Trimethylbenzene	0.20	0.50 ug/L			69-126	30	80-131	30
1,3-Dichlorobenzene	0.20	0.50 ug/L			74-119	30	86-130	30
1,3-Dichloropropane	0.20	0.50 ug/L			77-119	30	81-125	30
1,4-Dichlorobenzene	0.20	0.50 ug/L			70-124	30	85-130	30
1,4-Dioxane	40	40 ug/L			10-310	30	10-349	30
2,2-Dichloropropane	0.20	0.50 ug/L			10-160	30	56-152	30
2-Butanone	0.20	0.50 ug/L			10-193	30	49-152	30
2-Chlorotoluene	0.20	0.50 ug/L			70-126	30	79-130	30
2-Hexanone	0.20	0.50 ug/L			53-133	30	51-146	30
4-Chlorotoluene	0.20	0.50 ug/L			69-124	30	79-128	30
4-Methyl-2-pentanone	0.20	0.50 ug/L			38-150	30	57-145	30
Acetone	1.0	2.0 ug/L			13-149	30	14-150	30
Acrolein	0.20	0.50 ug/L			10-195	30	10-153	30
Acrylonitrile	0.20	0.50 ug/L			37-165	30	51-150	30
Benzene	0.20	0.50 ug/L			38-155	30	85-126	30
Bromobenzene	0.20	0.50 ug/L			72-122	30	78-129	30
Bromochloromethane	0.20	0.50 ug/L			75-121	30	77-128	30
Bromodichloromethane	0.20	0.50 ug/L			70-129	30	79-128	30
Bromoform	0.20	0.50 ug/L			66-136	30	78-133	30
Bromomethane	0.20	0.50 ug/L			30-158	30	43-168	30
Carbon disulfide	0.20	0.50 ug/L			10-138	30	68-146	30
Carbon tetrachloride	0.20	0.50 ug/L			71-146	30	77-141	30
Chlorobenzene	0.20	0.50 ug/L			81-117	30	88-120	30
Chloroethane	0.20	0.50 ug/L			51-145	30	65-136	30
Chloroform	0.20	0.50 ug/L			80-124	30	82-128	30
Chloromethane	0.20	0.50 ug/L			16-163	30	43-155	30
cis-1,2-Dichloroethylene	0.20	0.50 ug/L			76-125	30	83-129	30
cis-1,3-Dichloropropylene	0.20	0.50 ug/L			58-131	30	80-131	30
Cyclohexane	0.20	0.50 ug/L			70-130	30	63-149	30
Dibromochloromethane	0.20	0.50 ug/L			71-129	30	80-130	30
Dibromomethane	0.20	0.50 ug/L			76-120	30	72-134	30
Dichlorodifluoromethane	0.20	0.50 ug/L			30-147	30	44-144	30
Ethyl Benzene	0.20	0.50 ug/L			72-128	30	80-131	30
Hexachlorobutadiene	0.20	0.50 ug/L			34-166	30	67-146	30
Isopropylbenzene	0.20	0.50 ug/L			66-139	30	76-140	30

Analytical Method Information

(Continued)

Volatile Organics, 8260 - Comprehensive in Water (EPA 8260D) (Continued)

					----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Reporting Limit**	**Surrogate %Rec**	**Duplicate RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
Methyl acetate	0.20	0.50 ug/L			10-200	30	51-139	30
Methyl tert-butyl ether (MTBE)	0.20	0.50 ug/L			75-128	30	76-135	30
Methylcyclohexane	0.20	0.50 ug/L			70-130	30	72-143	30
Methylene chloride	1.0	2.0 ug/L			57-128	30	55-137	30
Naphthalene	1.0	2.0 ug/L			39-158	30	50-147	30
n-Butylbenzene	0.20	0.50 ug/L			61-138	30	79-132	30
n-Propylbenzene	0.20	0.50 ug/L			66-134	30	78-133	30
o-Xylene	0.20	0.50 ug/L			69-126	30	78-130	30
p- & m- Xylenes	0.50	1.0 ug/L			67-130	30	77-133	30
p-Diethylbenzene	0.20	0.50 ug/L			52-150	30	84-134	30
p-Ethyltoluene	0.20	0.50 ug/L			76-127	30	88-129	30
p-Isopropyltoluene	0.20	0.50 ug/L			64-137	30	81-136	30
sec-Butylbenzene	0.20	0.50 ug/L			53-155	30	79-137	30
Styrene	0.20	0.50 ug/L			69-125	30	67-132	30
tert-Butyl alcohol (TBA)	0.50	1.0 ug/L			10-130	30	25-162	30
tert-Butylbenzene	0.20	0.50 ug/L			65-139	30	77-138	30
Tetrachloroethylene	0.20	0.50 ug/L			64-139	30	82-131	30
Toluene	0.20	0.50 ug/L			76-123	30	80-127	30
trans-1,2-Dichloroethylene	0.20	0.50 ug/L			79-131	30	80-132	30
trans-1,3-Dichloropropylene	0.20	0.50 ug/L			55-130	30	78-131	30
trans-1,4-dichloro-2-butene	0.20	0.50 ug/L			25-155	30	63-141	30
Trichloroethylene	0.20	0.50 ug/L			53-145	30	82-128	30
Trichlorofluoromethane	0.20	0.50 ug/L			61-142	30	67-139	30
Vinyl acetate	0.20	0.50 ug/L			10-87	30	60-130	30
Vinyl Chloride	0.20	0.50 ug/L			31-165	30	58-145	30
Xylenes, Total	0.60	1.5 ug/L						
Chlorodifluoromethane (Freon 22)	0.20	0.50 ug/L				30		30
Surr: SURR: 1,2-Dichloroethane-d4			69-130					
Surr: SURR: Toluene-d8			81-117					
Surr: SURR: p-Bromofluorobenzene			79-122					
ISTD: Fluorobenzene								
ISTD: Chlorobenzene-d5								
ISTD: 1,2-Dichlorobenzene-d4								

Analytical Method Information

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Semi-Volatiles, 8270 - Comprehensive in Soil (EPA 8270E)

Preservation: Cool 4°C

Container: 06_4 oz. WM Clear Glass Cool to 4° C **Amount Required:** 100 g **Hold Time:** 14 days

		Reporting	Surrogate	Duplicate	----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Limit**	**%Rec**	**RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
1,1-Biphenyl	20.9	41.7 ug/kg			10-130	30	18-111	30
1,2,4,5-Tetrachlorobenzene	41.7	83.3 ug/kg			10-133	30	21-131	30
1,2,4-Trichlorobenzene	20.9	41.7 ug/kg			10-127	30	10-140	30
1,2-Dichlorobenzene	20.9	41.7 ug/kg			14-111	30	34-108	30
1,2-Diphenylhydrazine (as Azobenzene)	20.9	41.7 ug/kg			10-144	30	17-137	30
1,3-Dichlorobenzene	20.9	41.7 ug/kg			11-111	30	33-110	30
1,4-Dichlorobenzene	20.9	41.7 ug/kg			10-106	30	32-104	30
2,3,4,6-Tetrachlorophenol	41.7	83.3 ug/kg			30-130	30	30-130	30
2,4,5-Trichlorophenol	20.9	41.7 ug/kg			10-127	30	27-118	30
2,4,6-Trichlorophenol	20.9	41.7 ug/kg			10-132	30	31-120	30
2,4-Dichlorophenol	20.9	41.7 ug/kg			10-128	30	20-127	30
2,4-Dimethylphenol	20.9	41.7 ug/kg			10-137	30	14-132	30
2,4-Dinitrophenol	41.7	83.3 ug/kg			10-171	30	10-171	30
2,4-Dinitrotoluene	20.9	41.7 ug/kg			16-135	30	34-131	30
2,6-Dinitrotoluene	20.9	41.7 ug/kg			18-131	30	31-128	30
2-Chloronaphthalene	20.9	41.7 ug/kg			10-129	30	31-117	30
2-Chlorophenol	20.9	41.7 ug/kg			15-116	30	33-113	30
2-Methylnaphthalene	20.9	41.7 ug/kg			10-147	30	12-138	30
2-Methylphenol	20.9	41.7 ug/kg			10-136	30	10-136	30
2-Nitroaniline	41.7	83.3 ug/kg			10-137	30	27-132	30
2-Nitrophenol	20.9	41.7 ug/kg			10-129	30	17-129	30
3- & 4-Methylphenols	20.9	41.7 ug/kg			10-123	30	29-103	30
3,3-Dichlorobenzidine	20.9	41.7 ug/kg			10-155	30	22-149	30
3-Nitroaniline	41.7	83.3 ug/kg			12-133	30	20-133	30
4,6-Dinitro-2-methylphenol	41.7	83.3 ug/kg			10-155	30	10-143	30
4-Bromophenyl phenyl ether	20.9	41.7 ug/kg			14-128	30	29-120	30
4-Chloro-3-methylphenol	20.9	41.7 ug/kg			10-134	30	24-129	30
4-Chloroaniline	20.9	41.7 ug/kg			10-145	30	10-132	30
4-Chlorophenyl phenyl ether	20.9	41.7 ug/kg			14-130	30	27-124	30
4-Nitroaniline	41.7	83.3 ug/kg			10-147	30	16-128	30
4-Nitrophenol	41.7	83.3 ug/kg			10-137	30	10-141	30
Acenaphthene	20.9	41.7 ug/kg			10-146	30	30-121	30
Acenaphthylene	20.9	41.7 ug/kg			10-134	30	30-115	30
Acetophenone	20.9	41.7 ug/kg			10-116	30	20-112	30
Aniline	83.5	167 ug/kg			10-123	30	10-119	30
Anthracene	20.9	41.7 ug/kg			10-142	30	34-118	30
Atrazine	20.9	41.7 ug/kg			19-115	30	26-112	30
Benzaldehyde	20.9	41.7 ug/kg			10-125	30	21-100	30
Benzidine	83.5	167 ug/kg				30		30
Benzo(a)anthracene	20.9	41.7 ug/kg			10-158	30	32-122	30
Benzo(a)pyrene	20.9	41.7 ug/kg			10-180	30	29-133	30
Benzo(b)fluoranthene	20.9	41.7 ug/kg			10-200	30	25-133	30
Benzo(g,h,i)perylene	20.9	41.7 ug/kg			10-138	30	10-143	30
Benzo(k)fluoranthene	20.9	41.7 ug/kg			10-197	30	25-128	30
Benzoic acid	20.9	41.7 ug/kg			10-166	30	10-140	30
Benzyl alcohol	20.9	41.7 ug/kg			12-124	30	30-115	30
Benzyl butyl phthalate	20.9	41.7 ug/kg			10-154	30	26-126	30
Bis(2-chloroethoxy)methane	20.9	41.7 ug/kg			10-132	30	19-132	30
Bis(2-chloroethyl)ether	20.9	41.7 ug/kg			10-119	30	19-125	30
Bis(2-chloroisopropyl)ether	20.9	41.7 ug/kg			10-139	30	20-135	30
Bis(2-ethylhexyl)phthalate	20.9	41.7 ug/kg			10-167	30	10-155	30
Caprolactam	41.7	83.3 ug/kg			10-132	30	10-127	30
Carbazole	20.9	41.7 ug/kg			10-167	30	35-123	30

Semi-Volatiles, 8270 - Comprehensive in Soil (EPA 8270E) (Continued)

		Reporting	Surrogate	Duplicate	----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Limit**	**%Rec**	**RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
Chrysene	20.9	41.7 ug/kg			10-156	30	32-123	30
Dibenzo(a,h)anthracene	20.9	41.7 ug/kg			10-137	30	10-136	30
Dibenzofuran	20.9	41.7 ug/kg			10-147	30	29-121	30
Diethyl phthalate	20.9	41.7 ug/kg			20-120	30	34-116	30
Dimethyl phthalate	20.9	41.7 ug/kg			18-131	30	35-124	30
Di-n-butyl phthalate	20.9	41.7 ug/kg			10-137	30	31-116	30
Di-n-octyl phthalate	20.9	41.7 ug/kg			10-180	30	26-136	30
Diphenylamine	41.7	83.3 ug/kg			40-140	30	40-140	30
Fluoranthene	20.9	41.7 ug/kg			10-160	30	33-122	30
Fluorene	20.9	41.7 ug/kg			10-157	30	29-123	30
Hexachlorobenzene	20.9	41.7 ug/kg			10-137	30	21-124	30
Hexachlorobutadiene	20.9	41.7 ug/kg			10-132	30	10-149	30
Hexachlorocyclopentadiene	20.9	41.7 ug/kg			10-106	30	10-129	30
Hexachloroethane	20.9	41.7 ug/kg			10-110	30	28-108	30
Indeno(1,2,3-cd)pyrene	20.9	41.7 ug/kg			10-144	30	10-135	30
Isophorone	20.9	41.7 ug/kg			10-132	30	20-132	30
Naphthalene	20.9	41.7 ug/kg			10-141	30	23-124	30
Nitrobenzene	20.9	41.7 ug/kg			10-131	30	13-132	30
N-Nitrosodimethylamine	20.9	41.7 ug/kg			10-126	30	11-129	30
N-nitroso-di-n-propylamine	20.9	41.7 ug/kg			10-125	30	24-119	30
N-Nitrosodiphenylamine	20.9	41.7 ug/kg			10-177	30	22-152	30
Pentachlorophenol	20.9	41.7 ug/kg			10-153	30	10-139	30
Phenanthrene	20.9	41.7 ug/kg			10-148	30	33-123	30
Phenol	20.9	41.7 ug/kg			10-126	30	23-115	30
Pyrene	20.9	41.7 ug/kg			10-165	30	32-130	30
Pyridine	83.5	167 ug/kg			10-83	30	10-91	30
Total PAH Benzo(a)pyrene (BAP) Equivalent-BAPE	146	292 ug/kg						
Surr: SURR: 2-Fluorophenol			20-108					
Surr: SURR: Phenol-d6			23-114					
Surr: SURR: Nitrobenzene-d5			22-108					
Surr: SURR: 2-Fluorobiphenyl			21-113					
Surr: SURR: 2,4,6-Tribromophenol			19-110					
Surr: SURR: Terphenyl-d14			24-116					
ISTD: 1,4-Dichlorobenzene-d4								
ISTD: Naphthalene-d8								
ISTD: Acenaphthene-d10								
ISTD: Phenanthrene-d10								
ISTD: Chrysene-d12								
ISTD: Perylene-d12								

Analytical Method Information

(Continued)

Semi-Volatiles, 8270 - Comprehensive in Water (EPA 8270E)

Preservation: Cool 4°C

Container: 07_1000mL Amber Glass Cool to 4° C **Amount Required:** 1000 mL **Hold Time:** 7 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD
1,1-Biphenyl	2.50	5.00 ug/L			40-140	20	21-102	20
1,2,4,5-Tetrachlorobenzene	2.50	5.00 ug/L			40-140	20	28-105	20
1,2,4-Trichlorobenzene	2.50	5.00 ug/L			31-92	20	35-91	20
1,2-Dichlorobenzene	2.50	5.00 ug/L			31-91	20	42-85	20
1,2-Diphenylhydrazine (as Azobenzene)	2.50	5.00 ug/L			40-140	20	16-137	20
1,3-Dichlorobenzene	2.50	5.00 ug/L			24-93	20	45-80	20
1,4-Dichlorobenzene	2.50	5.00 ug/L			26-95	20	42-82	20
2,3,4,6-Tetrachlorophenol	2.50	5.00 ug/L			30-130	20	30-130	20
2,4,5-Trichlorophenol	2.50	5.00 ug/L			44-96	20	36-112	20
2,4,6-Trichlorophenol	2.50	5.00 ug/L			39-107	20	41-107	20
2,4-Dichlorophenol	2.50	5.00 ug/L			38-99	20	43-92	20
2,4-Dimethylphenol	2.50	5.00 ug/L			10-116	20	25-92	20
2,4-Dinitrophenol	2.50	5.00 ug/L			10-168	20	10-149	20
2,4-Dinitrotoluene	2.50	5.00 ug/L			26-120	20	41-114	20
2,6-Dinitrotoluene	2.50	5.00 ug/L			28-118	20	49-106	20
2-Chloronaphthalene	2.50	5.00 ug/L			33-99	20	40-96	20
2-Chlorophenol	2.50	5.00 ug/L			25-106	20	35-84	20
2-Methylnaphthalene	2.50	5.00 ug/L			29-102	20	33-101	20
2-Methylphenol	2.50	5.00 ug/L			10-118	20	10-90	20
2-Nitroaniline	2.50	5.00 ug/L			48-99	20	31-122	20
2-Nitrophenol	2.50	5.00 ug/L			36-103	20	37-97	20
3- & 4-Methylphenols	2.50	5.00 ug/L			10-102	20	10-101	20
3,3-Dichlorobenzidine	2.50	5.00 ug/L			10-140	20	25-155	20
3-Nitroaniline	2.50	5.00 ug/L			10-169	20	29-128	20
4,6-Dinitro-2-methylphenol	2.50	5.00 ug/L			10-142	20	10-135	20
4-Bromophenyl phenyl ether	2.50	5.00 ug/L			35-109	20	38-116	20
4-Chloro-3-methylphenol	2.50	5.00 ug/L			20-117	20	28-101	20
4-Chloroaniline	2.50	5.00 ug/L			24-116	20	10-154	20
4-Chlorophenyl phenyl ether	2.50	5.00 ug/L			31-112	20	34-112	20
4-Nitroaniline	2.50	5.00 ug/L			24-143	20	15-143	20
4-Nitrophenol	2.50	5.00 ug/L			10-119	20	10-112	20
Acenaphthene	0.0500	0.0500 ug/L			17-132	20	24-114	20
Acenaphthylene	0.0500	0.0500 ug/L			13-124	20	26-112	20
Acetophenone	2.50	5.00 ug/L			40-140	20	47-92	20
Aniline	2.50	5.00 ug/L			10-133	20	10-107	20
Anthracene	0.0500	0.0500 ug/L			40-105	20	35-114	20
Atrazine	0.500	0.500 ug/L			40-140	20	43-101	20
Benzaldehyde	2.50	5.00 ug/L			40-140	20	17-117	20
Benzidine	10.0	20.0 ug/L				20		20
Benzo(a)anthracene	0.0500	0.0500 ug/L			23-141	20	38-127	20
Benzo(a)pyrene	0.0500	0.0500 ug/L			46-118	20	30-146	20
Benzo(b)fluoranthene	0.0500	0.0500 ug/L			22-133	20	36-145	20
Benzo(g,h,i)perylene	0.0500	0.0500 ug/L			10-126	20	10-163	20
Benzo(k)fluoranthene	0.0500	0.0500 ug/L			18-152	20	16-149	20
Benzoic acid	25.0	50.0 ug/L			10-162	20	30-130	20
Benzyl alcohol	2.50	5.00 ug/L			10-114	20	18-75	20
Benzyl butyl phthalate	2.50	5.00 ug/L			31-121	20	28-129	20
Bis(2-chloroethoxy)methane	2.50	5.00 ug/L			23-110	20	27-112	20
Bis(2-chloroethyl)ether	2.50	5.00 ug/L			10-132	20	24-114	20
Bis(2-chloroisopropyl)ether	2.50	5.00 ug/L			12-132	20	21-124	20
Bis(2-ethylhexyl)phthalate	0.500	0.500 ug/L			14-131	20	10-171	20
Caprolactam	2.50	5.00 ug/L			40-140	20	10-29	20
Carbazole	2.50	5.00 ug/L			10-169	20	49-116	20

Analytical Method Information

(Continued)

Semi-Volatiles, 8270 - Comprehensive in Water (EPA 8270E) (Continued)

		Reporting	Surrogate	Duplicate	----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Limit**	**%Rec**	**RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
Chrysene	0.0500	0.0500 ug/L			30-127	20	33-120	20
Dibenzo(a,h)anthracene	0.0500	0.0500 ug/L			10-131	20	10-149	20
Dibenzofuran	2.50	5.00 ug/L			37-103	20	42-105	20
Diethyl phthalate	2.50	5.00 ug/L			41-106	20	38-112	20
Dimethyl phthalate	2.50	5.00 ug/L			38-105	20	49-106	20
Di-n-butyl phthalate	2.50	5.00 ug/L			24-121	20	36-110	20
Di-n-octyl phthalate	2.50	5.00 ug/L			25-141	20	12-149	20
Diphenylamine	2.50	5.00 ug/L			40-140	25	40-140	20
Fluoranthene	0.0500	0.0500 ug/L			29-123	20	33-126	20
Fluorene	0.0500	0.0500 ug/L			20-133	20	28-117	20
Hexachlorobenzene	0.0200	0.0200 ug/L			24-120	20	27-120	20
Hexachlorobutadiene	0.500	0.500 ug/L			26-98	20	25-106	20
Hexachlorocyclopentadiene	2.50	5.00 ug/L			10-103	20	10-99	20
Hexachloroethane	0.500	0.500 ug/L			11-102	20	33-84	20
Indeno(1,2,3-cd)pyrene	0.0500	0.0500 ug/L			10-130	20	10-150	20
Isophorone	2.50	5.00 ug/L			19-113	20	29-115	20
Naphthalene	0.0500	0.0500 ug/L			26-104	20	30-99	20
Nitrobenzene	0.250	0.250 ug/L			25-107	20	32-113	20
N-Nitrosodimethylamine	0.500	0.500 ug/L			10-110	20	10-63	20
N-nitroso-di-n-propylamine	2.50	5.00 ug/L			16-127	20	36-118	20
N-Nitrosodiphenylamine	2.50	5.00 ug/L			46-116	20	27-145	20
Pentachlorophenol	0.250	0.250 ug/L			10-181	20	19-127	20
Phenanthrene	0.0500	0.0500 ug/L			29-121	20	31-112	20
Phenol	2.50	5.00 ug/L			10-107	20	10-37	20
Pyrene	0.0500	0.0500 ug/L			34-129	20	42-125	20
Pyridine	2.50	5.00 ug/L			10-73	20	10-46	20
Surr: SURR: 2-Fluorophenol			19.7-63.1					
Surr: SURR: Phenol-d6			10.1-41.7					
Surr: SURR: Nitrobenzene-d5			50.2-113					
Surr: SURR: 2-Fluorobiphenyl			39.9-105					
Surr: SURR: 2,4,6-Tribromophenol			39.3-151					
Surr: SURR: Terphenyl-d14			30.7-106					
ISTD: 1,4-Dichlorobenzene-d4								
ISTD: Naphthalene-d8								
ISTD: Acenaphthene-d10								
ISTD: Phenanthrene-d10								
ISTD: Chrysene-d12								
ISTD: Perylene-d12								

Analytical Method Information

Printed: 07/29/2024 10:11 pm

Polychlorinated Biphenyls (PCB) in Soil (EPA 8082A)

Preservation: Cool 4°C

Container: 06_8 oz. WM Clear Glass Cool to 4° C

Amount Required: 100g

Hold Time: 14 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD
Aroclor 1016	0.0167	0.0167 mg/kg			40-140	50	40-130	25
Aroclor 1016 (1)								
Aroclor 1016 (2)								
Aroclor 1016 (3)								
Aroclor 1016 (4)								
Aroclor 1016 (5)								
Aroclor 1016 [2C]	0.0167	0.0167 mg/kg			40-140	50	40-130	25
Aroclor 1016 (1) [2C]								
Aroclor 1016 (2) [2C]								
Aroclor 1016 (3) [2C]								
Aroclor 1016 (4) [2C]								
Aroclor 1016 (5) [2C]								
Aroclor 1221	0.0167	0.0167 mg/kg						
Aroclor 1221 (1)								
Aroclor 1221 (2)								
Aroclor 1221 (3)								
Aroclor 1221 [2C]	0.0167	0.0167 mg/kg						
Aroclor 1221 (1) [2C]								
Aroclor 1221 (2) [2C]								
Aroclor 1221 (3) [2C]								
Aroclor 1232	0.0167	0.0167 mg/kg						
Aroclor 1232 (1)								
Aroclor 1232 (2)								
Aroclor 1232 (3)								
Aroclor 1232 (4)								
Aroclor 1232 (5)								
Aroclor 1232 [2C]	0.0167	0.0167 mg/kg						
Aroclor 1232 (1) [2C]								
Aroclor 1232 (2) [2C]								
Aroclor 1232 (3) [2C]								
Aroclor 1232 (4) [2C]								
Aroclor 1232 (5) [2C]								
Aroclor 1242	0.0167	0.0167 mg/kg						
Aroclor 1242 (1)								
Aroclor 1242 (2)								
Aroclor 1242 (3)								
Aroclor 1242 (4)								
Aroclor 1242 (5)								
Aroclor 1242 [2C]	0.0167	0.0167 mg/kg						
Aroclor 1242 (1) [2C]								
Aroclor 1242 (2) [2C]								
Aroclor 1242 (3) [2C]								
Aroclor 1242 (4) [2C]								
Aroclor 1242 (5) [2C]								
Aroclor 1248	0.0167	0.0167 mg/kg						
Aroclor 1248 (1)								
Aroclor 1248 (2)								
Aroclor 1248 (3)								
Aroclor 1248 (4)								
Aroclor 1248 (5)								
Aroclor 1248 [2C]	0.0167	0.0167 mg/kg						
Aroclor 1248 (1) [2C]								
Aroclor 1248 (2) [2C]								
Aroclor 1248 (3) [2C]								

Analytical Method Information

(Continued)

Polychlorinated Biphenyls (PCB) in Soil (EPA 8082A) (Continued)

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Aroclor 1248 (4) [2C]								
Aroclor 1248 (5) [2C]								
Aroclor 1254	0.0167	0.0167 mg/kg				50		25
Aroclor 1254 (1)								
Aroclor 1254 (2)								
Aroclor 1254 (3)								
Aroclor 1254 (4)								
Aroclor 1254 (5)								
Aroclor 1254 [2C]	0.0167	0.0167 mg/kg						
Aroclor 1254 (1) [2C]								
Aroclor 1254 (2) [2C]								
Aroclor 1254 (3) [2C]								
Aroclor 1254 (4) [2C]								
Aroclor 1254 (5) [2C]								
Aroclor 1260	0.0167	0.0167 mg/kg			40-140	50	40-130	25
Aroclor 1260 (1)								
Aroclor 1260 (2)								
Aroclor 1260 (3)								
Aroclor 1260 (4)								
Aroclor 1260 (5)								
Aroclor 1260 [2C]	0.0167	0.0167 mg/kg			40-140	50	40-130	25
Aroclor 1260 (1) [2C]								
Aroclor 1260 (2) [2C]								
Aroclor 1260 (3) [2C]								
Aroclor 1260 (4) [2C]								
Aroclor 1260 (5) [2C]								
Aroclor 1262	0.0167	0.0167 mg/kg						
Aroclor 1262 (1)								
Aroclor 1262 (2)								
Aroclor 1262 (3)								
Aroclor 1262 (4)								
Aroclor 1262 (5)								
Aroclor 1262 [2C]	0.0167	0.0167 mg/kg						
Aroclor 1262 (1) [2C]								
Aroclor 1262 (2) [2C]								
Aroclor 1262 (3) [2C]								
Aroclor 1262 (4) [2C]								
Aroclor 1262 (5) [2C]								
Aroclor 1268	0.0167	0.0167 mg/kg						
Aroclor 1268 (1)								
Aroclor 1268 (2)								
Aroclor 1268 (3)								
Aroclor 1268 (4)								
Aroclor 1268 (5)								
Aroclor 1268 [2C]	0.0167	0.0167 mg/kg						
Aroclor 1268 (1) [2C]								
Aroclor 1268 (2) [2C]								
Aroclor 1268 (3) [2C]								
Aroclor 1268 (4) [2C]								
Aroclor 1268 (5) [2C]								
Total PCBs	0.0167	0.0167 mg/kg						
Total PCBs [2C]	0.0167	0.0167 mg/kg						
Surr: Tetrachloro-m-xylene			30-140					
Surr: Tetrachloro-m-xylene [2C]			30-140					
Surr: Decachlorobiphenyl			30-140					
Surr: Decachlorobiphenyl [2C]			30-140					

Polychlorinated Biphenyls (PCB) in Water (EPA 8082A)

Preservation: Cool 4°C

Container: 07_1000mL Amber Glass Cool to 4° C **Amount Required:** 1000 mL **Hold Time:** 7 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Aroclor 1016	0.0500	0.0500 ug/L		50	40-140	50	40-120	30
Aroclor 1016 (1)								
Aroclor 1016 (2)								
Aroclor 1016 (3)								
Aroclor 1016 (4)								
Aroclor 1016 (5)								
Aroclor 1016 [2C]	0.0500	0.0500 ug/L		50	40-140	50	40-120	30
Aroclor 1016 (1) [2C]								
Aroclor 1016 (2) [2C]								
Aroclor 1016 (3) [2C]								
Aroclor 1016 (4) [2C]								
Aroclor 1016 (5) [2C]								
Aroclor 1221	0.0500	0.0500 ug/L						
Aroclor 1221 (1)								
Aroclor 1221 (2)								
Aroclor 1221 (3)								
Aroclor 1221 [2C]	0.0500	0.0500 ug/L						
Aroclor 1221 (1) [2C]								
Aroclor 1221 (2) [2C]								
Aroclor 1221 (3) [2C]								
Aroclor 1232	0.0500	0.0500 ug/L						
Aroclor 1232 (1)								
Aroclor 1232 (2)								
Aroclor 1232 (3)								
Aroclor 1232 (4)								
Aroclor 1232 (5)								
Aroclor 1232 [2C]	0.0500	0.0500 ug/L						
Aroclor 1232 (1) [2C]								
Aroclor 1232 (2) [2C]								
Aroclor 1232 (3) [2C]								
Aroclor 1232 (4) [2C]								
Aroclor 1232 (5) [2C]								
Aroclor 1242	0.0500	0.0500 ug/L						
Aroclor 1242 (1)								
Aroclor 1242 (2)								
Aroclor 1242 (3)								
Aroclor 1242 (4)								
Aroclor 1242 (5)								
Aroclor 1242 [2C]	0.0500	0.0500 ug/L						
Aroclor 1242 (1) [2C]								
Aroclor 1242 (2) [2C]								
Aroclor 1242 (3) [2C]								
Aroclor 1242 (4) [2C]								
Aroclor 1242 (5) [2C]								
Aroclor 1248	0.0500	0.0500 ug/L						
Aroclor 1248 (1)								
Aroclor 1248 (2)								
Aroclor 1248 (3)								
Aroclor 1248 (4)								
Aroclor 1248 (5)								
Aroclor 1248 [2C]	0.0500	0.0500 ug/L						
Aroclor 1248 (1) [2C]								
Aroclor 1248 (2) [2C]								
Aroclor 1248 (3) [2C]								

Analytical Method Information

Printed: 07/29/2024 10:11 pm

(Continued)

Polychlorinated Biphenyls (PCB) in Water (EPA 8082A) (Continued)

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Aroclor 1248 (4) [2C]								
Aroclor 1248 (5) [2C]								
Aroclor 1254	0.0500	0.0500 ug/L		50		50		30
Aroclor 1254 (1)								
Aroclor 1254 (2)								
Aroclor 1254 (3)								
Aroclor 1254 (4)								
Aroclor 1254 (5)								
Aroclor 1254 [2C]	0.0500	0.0500 ug/L						
Aroclor 1254 (1) [2C]								
Aroclor 1254 (2) [2C]								
Aroclor 1254 (3) [2C]								
Aroclor 1254 (4) [2C]								
Aroclor 1254 (5) [2C]								
Aroclor 1260	0.0500	0.0500 ug/L		50	40-140	50	40-120	30
Aroclor 1260 (1)								
Aroclor 1260 (2)								
Aroclor 1260 (3)								
Aroclor 1260 (4)								
Aroclor 1260 (5)								
Aroclor 1260 [2C]	0.0500	0.0500 ug/L		50	40-140	50	40-120	30
Aroclor 1260 (1) [2C]								
Aroclor 1260 (2) [2C]								
Aroclor 1260 (3) [2C]								
Aroclor 1260 (4) [2C]								
Aroclor 1260 (5) [2C]								
Aroclor 1262	0.0500	0.0500 ug/L						
Aroclor 1262 (1)								
Aroclor 1262 (2)								
Aroclor 1262 (3)								
Aroclor 1262 (4)								
Aroclor 1262 (5)								
Aroclor 1262 [2C]	0.0500	0.0500 ug/L						
Aroclor 1262 (1) [2C]								
Aroclor 1262 (2) [2C]								
Aroclor 1262 (3) [2C]								
Aroclor 1262 (4) [2C]								
Aroclor 1262 (5) [2C]								
Aroclor 1268	0.0500	0.0500 ug/L						
Aroclor 1268 (1)								
Aroclor 1268 (2)								
Aroclor 1268 (3)								
Aroclor 1268 (4)								
Aroclor 1268 (5)								
Aroclor 1268 [2C]	0.0500	0.0500 ug/L						
Aroclor 1268 (1) [2C]								
Aroclor 1268 (2) [2C]								
Aroclor 1268 (3) [2C]								
Aroclor 1268 (4) [2C]								
Aroclor 1268 (5) [2C]								
Total PCBs	0.0500	0.0500 ug/L						
Total PCBs [2C]	0.0500	0.0500 ug/L						
Surr: Tetrachloro-m-xylene			30-120					
Surr: Tetrachloro-m-xylene [2C]			30-120					
Surr: Decachlorobiphenyl			30-120					
Surr: Decachlorobiphenyl [2C]			30-120					

Analytical Method Information

Printed: 07/29/2024 10:09 pm

Pesticides, 8081 target list in Soil (EPA 8081B)

Preservation: Cool 4°C

Container: 06_4 oz. WM Clear Glass Cool to 4° C **Amount Required:** 100 g **Hold Time:** 14 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD
4,4'-DDD	0.330	0.330 ug/kg			30-150	30	40-140	30
4,4'-DDD [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
4,4'-DDE	0.330	0.330 ug/kg			30-150	30	40-140	30
4,4'-DDE [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
4,4'-DDT	0.330	0.330 ug/kg			30-150	30	40-140	30
4,4'-DDT [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Aldrin	0.330	0.330 ug/kg			30-150	30	40-140	30
Aldrin [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
alpha-BHC	0.330	0.330 ug/kg			30-150	30	40-140	30
alpha-BHC [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
alpha-Chlordane	0.330	0.330 ug/kg			30-150	30	40-140	30
alpha-Chlordane [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
beta-BHC	0.330	0.330 ug/kg			30-150	30	40-140	30
beta-BHC [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Chlordane, total	6.60	6.60 ug/kg						30
Chlordane, total [2C]	6.60	6.60 ug/kg				30		30
delta-BHC	0.330	0.330 ug/kg			30-150	30	40-140	30
delta-BHC [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Dieldrin	0.330	0.330 ug/kg			30-150	30	40-140	30
Dieldrin [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Endosulfan I	0.330	0.330 ug/kg			30-150	30	40-140	30
Endosulfan I [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Endosulfan II	0.330	0.330 ug/kg			30-150	30	40-140	30
Endosulfan II [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Endosulfan sulfate	0.330	0.330 ug/kg			30-150	30	40-140	30
Endosulfan sulfate [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Endrin	0.330	0.330 ug/kg			30-150	30	40-140	30
Endrin [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Endrin aldehyde	0.330	0.330 ug/kg			30-150	30	40-140	30
Endrin aldehyde [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Endrin ketone	0.330	0.330 ug/kg			30-150	30	40-140	30
Endrin ketone [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
gamma-BHC (Lindane)	0.330	0.330 ug/kg			30-150	30	40-140	30
gamma-BHC (Lindane) [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
gamma-Chlordane	0.330	0.330 ug/kg			30-150	30	40-140	30
gamma-Chlordane [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Heptachlor	0.330	0.330 ug/kg			30-150	30	40-140	30
Heptachlor [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Heptachlor epoxide	0.330	0.330 ug/kg			30-150	30	40-140	30
Heptachlor epoxide [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Methoxychlor	0.330	0.330 ug/kg			30-150	30	40-140	30
Methoxychlor [2C]	0.330	0.330 ug/kg			30-150	30	40-140	30
Toxaphene	33.0	33.0 ug/kg				30		30
Toxaphene [2C]	33.0	33.0 ug/kg				30		30
Mirex	0.330	0.330 ug/kg			30-150	30	40-140	30
Surr: Decachlorobiphenyl			30-150					
Surr: Decachlorobiphenyl [2C]			30-150					
Surr: Tetrachloro-m-xylene			30-150					
Surr: Tetrachloro-m-xylene [2C]			30-150					

Analytical Method Information

(Continued)

Pesticides, 8081 target list in Water (EPA 8081B)

Preservation: Cool 4°C

Container: 07_1000mL Amber Glass Cool to 4° C **Amount Required:** 1000 mL **Hold Time:** 7 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
4,4'-DDD	0.00400	0.00400 ug/L			30-150	20	40-140	20
4,4'-DDD [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
4,4'-DDE	0.00400	0.00400 ug/L			30-150	20	40-140	20
4,4'-DDE [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
4,4'-DDT	0.00400	0.00400 ug/L			30-150	20	40-140	20
4,4'-DDT [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Aldrin	0.00400	0.00400 ug/L			30-150	20	40-140	20
Aldrin [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
alpha-BHC	0.00400	0.00400 ug/L			30-150	20	40-140	20
alpha-BHC [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
alpha-Chlordane	0.00400	0.00400 ug/L			30-150	20	40-140	20
alpha-Chlordane [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
beta-BHC	0.00400	0.00400 ug/L			30-150	20	40-140	20
beta-BHC [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Chlordane, total	0.0200	0.0200 ug/L				20		20
Chlordane, total [2C]	0.0200	0.0200 ug/L				20		20
delta-BHC	0.00400	0.00400 ug/L			30-150	20	40-140	20
delta-BHC [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Dieldrin	0.00200	0.00200 ug/L			30-150	20	40-140	20
Dieldrin [2C]	0.00200	0.00200 ug/L			30-150	20	40-140	20
Endosulfan I	0.00400	0.00400 ug/L			30-150	20	40-140	20
Endosulfan I [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Endosulfan II	0.00400	0.00400 ug/L			30-150	20	40-140	20
Endosulfan II [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Endosulfan sulfate	0.00400	0.00400 ug/L			30-150	20	40-140	20
Endosulfan sulfate [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Endrin	0.00400	0.00400 ug/L			30-150	20	40-140	20
Endrin [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Endrin aldehyde	0.0100	0.0100 ug/L			30-150	20	40-140	20
Endrin aldehyde [2C]	0.0100	0.0100 ug/L			30-150	20	40-140	20
Endrin ketone	0.0100	0.0100 ug/L			30-150	20	40-140	20
Endrin ketone [2C]	0.0100	0.0100 ug/L			30-150	20	40-140	20
gamma-BHC (Lindane)	0.00400	0.00400 ug/L			30-150	20	40-140	20
gamma-BHC (Lindane) [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
gamma-Chlordane	0.0100	0.0100 ug/L			30-150	20	40-140	20
gamma-Chlordane [2C]	0.0100	0.0100 ug/L			30-150	20	40-140	20
Heptachlor	0.00400	0.00400 ug/L			30-150	20	40-140	20
Heptachlor [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Heptachlor epoxide	0.00400	0.00400 ug/L			30-150	20	40-140	20
Heptachlor epoxide [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Methoxychlor	0.00400	0.00400 ug/L			30-150	20	40-140	20
Methoxychlor [2C]	0.00400	0.00400 ug/L			30-150	20	40-140	20
Toxaphene	0.100	0.100 ug/L				20		20
Toxaphene [2C]	0.100	0.100 ug/L				20		20
Mirex	0.00400	0.00400 ug/L			30-150	20	40-140	20
Surr: Decachlorobiphenyl			30-150					
Surr: Decachlorobiphenyl [2C]			30-150					
Surr: Tetrachloro-m-xylene			30-150					
Surr: Tetrachloro-m-xylene [2C]			30-150					

Analytical Method Information

Mercury by 7473 in Soil (EPA 7473)

Preservation: Cool 4°C

Container: 06_8 oz. WM Clear Glass Cool to 4° C **Amount Required:** 10 g. **Hold Time:** 28 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Mercury	0.0300	0.0300 mg/kg		35	75-125		67.6-131	

Mercury by 7473 in Water (EPA 7473)

Preservation: Add HNO3 to pH<2, Cool 4°C

Container: 10_250mL Plastic pH <2 w/ HNO3 **Amount Required:** 100 mL **Hold Time:** 28 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Mercury	0.000200	0.000200 mg/L		20	75-125		80-120	

Metals, Target Analyte in Soil (EPA 6010D)

Preservation: Cool 4°C

Container: 06_4 oz. WM Clear Glass Cool to 4° C **Amount Required:** 50 **Hold Time:** 180 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Aluminum	4.17	4.17 mg/kg		35	75-125	35	80-120	
Antimony	2.08	2.08 mg/kg		35	75-125	35	80-120	
Arsenic	1.25	1.25 mg/kg		35	75-125	35	80-120	
Barium	2.08	2.08 mg/kg		35	75-125	35	80-120	
Beryllium	0.0420	0.0420 mg/kg		35	75-125	35	80-120	
Cadmium	0.250	0.250 mg/kg		35	75-125	35	80-120	
Calcium	4.17	4.17 mg/kg		35	75-125	35	80-120	
Chromium	0.417	0.417 mg/kg		35	75-125	35	80-120	
Cobalt	0.333	0.333 mg/kg		35	75-125	35	80-120	
Copper	1.67	1.67 mg/kg		35	75-125	35	80-120	
Iron	20.8	20.8 mg/kg		35	75-125	35	80-120	
Lead	0.417	0.417 mg/kg		35	75-125	35	80-120	
Magnesium	4.17	4.17 mg/kg		35	75-125	35	80-120	
Manganese	0.417	0.417 mg/kg		35	75-125	35	80-120	
Nickel	0.830	0.830 mg/kg		35	75-125	35	80-120	
Potassium	4.17	4.17 mg/kg		35	75-125	35	80-120	
Selenium	2.08	2.08 mg/kg		35	75-125	35	80-120	
Silver	0.420	0.420 mg/kg		35	75-125	35	80-120	
Sodium	41.7	41.7 mg/kg		35	75-125	35	80-120	
Thallium	2.08	2.08 mg/kg		35	75-125	35	80-120	
Vanadium	0.830	0.830 mg/kg		35	75-125	35	80-120	
Zinc	2.08	2.08 mg/kg		35	75-125	35	80-120	
Yttrium 371.029								

Metals, Target Analyte in Water (EPA 6010D)

Preservation: Add HNO3 to pH<2, Cool 4°C

Container: 10_250mL Plastic pH <2 w/ HNO3 **Amount Required:** 200 **Hold Time:** 180 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD
Aluminum	0.0500	0.0500 mg/L		20		20	80-120	
Antimony	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Arsenic	0.0150	0.0150 mg/L		20	75-125	20	80-120	
Barium	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Beryllium	0.000500	0.000500 mg/L		20	75-125	20	80-120	
Cadmium	0.00300	0.00300 mg/L		20	75-125	20	80-120	
Calcium	0.0500	0.0500 mg/L		20		20	80-120	
Chromium	0.00500	0.00500 mg/L		20	75-125	20	80-120	
Cobalt	0.00400	0.00400 mg/L		20	75-125	20	80-120	
Copper	0.0200	0.0200 mg/L		20	75-125	20	80-120	
Iron	0.250	0.250 mg/L		20	75-125	20	80-120	
Lead	0.00500	0.00500 mg/L		20	75-125	20	80-120	
Magnesium	0.0500	0.0500 mg/L		20		20	80-120	
Manganese	0.00500	0.00500 mg/L		20	75-125	20	80-120	
Nickel	0.0100	0.0100 mg/L		20	75-125	20	80-120	
Potassium	0.0500	0.0500 mg/L		20		20	80-120	
Selenium	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Silver	0.00500	0.00500 mg/L		20	75-125	20	80-120	
Sodium	0.500	0.500 mg/L		20		20	80-120	
Thallium	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Vanadium	0.0100	0.0100 mg/L		20	75-125	20	80-120	
Zinc	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Yttrium 371.029								

Metals, Target Analyte List in Soil (varies)

Preservation: [Group Analysis]

Container: **Amount Required:** **Hold Time:** 5 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD

No Analytes listed

Metals, Target Analyte List in Water (varies)

Preservation: [Group Analysis]

Container: **Amount Required:** **Hold Time:** 5 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD

No Analytes listed

Analytical Method Information

Printed: 07/29/2024 10:12 pm

Mercury by 7473 in Soil (EPA 7473)

Preservation: Cool 4°C

Container: 06_8 oz. WM Clear Glass Cool to 4° C **Amount Required:** 10 g. **Hold Time:** 28 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD
Mercury	0.0300	0.0300 mg/kg		35	75-125		67.6-131	

Mercury by 7473 in Water (EPA 7473)

Preservation: Add HNO3 to pH<2, Cool 4°C

Container: 10_250mL Plastic pH <2 w/ HNO3 **Amount Required:** 100 mL **Hold Time:** 28 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD
Mercury	0.000200	0.000200 mg/L		20	75-125		80-120	

Metals, Target Analyte in Soil (EPA 6010D)

Preservation: Cool 4°C

Container: 06_4 oz. WM Clear Glass Cool to 4° C **Amount Required:** 50 **Hold Time:** 180 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD
Aluminum	4.17	4.17 mg/kg		35	75-125	35	80-120	
Antimony	2.08	2.08 mg/kg		35	75-125	35	80-120	
Arsenic	1.25	1.25 mg/kg		35	75-125	35	80-120	
Barium	2.08	2.08 mg/kg		35	75-125	35	80-120	
Beryllium	0.0420	0.0420 mg/kg		35	75-125	35	80-120	
Cadmium	0.250	0.250 mg/kg		35	75-125	35	80-120	
Calcium	4.17	4.17 mg/kg		35	75-125	35	80-120	
Chromium	0.417	0.417 mg/kg		35	75-125	35	80-120	
Cobalt	0.333	0.333 mg/kg		35	75-125	35	80-120	
Copper	1.67	1.67 mg/kg		35	75-125	35	80-120	
Iron	20.8	20.8 mg/kg		35	75-125	35	80-120	
Lead	0.417	0.417 mg/kg		35	75-125	35	80-120	
Magnesium	4.17	4.17 mg/kg		35	75-125	35	80-120	
Manganese	0.417	0.417 mg/kg		35	75-125	35	80-120	
Nickel	0.830	0.830 mg/kg		35	75-125	35	80-120	
Potassium	4.17	4.17 mg/kg		35	75-125	35	80-120	
Selenium	2.08	2.08 mg/kg		35	75-125	35	80-120	
Silver	0.420	0.420 mg/kg		35	75-125	35	80-120	
Sodium	41.7	41.7 mg/kg		35	75-125	35	80-120	
Thallium	2.08	2.08 mg/kg		35	75-125	35	80-120	
Vanadium	0.830	0.830 mg/kg		35	75-125	35	80-120	
Zinc	2.08	2.08 mg/kg		35	75-125	35	80-120	
Yttrium 371.029								

Analytical Method Information

(Continued)

Metals, Target Analyte in Water (EPA 6010D)

Preservation: Add HNO3 to pH<2, Cool 4°C

Container: 10_250mL Plastic pH <2 w/ HNO3 **Amount Required:** 200 **Hold Time:** 180 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD
Aluminum	0.0500	0.0500 mg/L		20		20	80-120	
Antimony	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Arsenic	0.0150	0.0150 mg/L		20	75-125	20	80-120	
Barium	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Beryllium	0.000500	0.000500 mg/L		20	75-125	20	80-120	
Cadmium	0.00300	0.00300 mg/L		20	75-125	20	80-120	
Calcium	0.0500	0.0500 mg/L		20		20	80-120	
Chromium	0.00500	0.00500 mg/L		20	75-125	20	80-120	
Cobalt	0.00400	0.00400 mg/L		20	75-125	20	80-120	
Copper	0.0200	0.0200 mg/L		20	75-125	20	80-120	
Iron	0.250	0.250 mg/L		20	75-125	20	80-120	
Lead	0.00500	0.00500 mg/L		20	75-125	20	80-120	
Magnesium	0.0500	0.0500 mg/L		20		20	80-120	
Manganese	0.00500	0.00500 mg/L		20	75-125	20	80-120	
Nickel	0.0100	0.0100 mg/L		20	75-125	20	80-120	
Potassium	0.0500	0.0500 mg/L		20		20	80-120	
Selenium	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Silver	0.00500	0.00500 mg/L		20	75-125	20	80-120	
Sodium	0.500	0.500 mg/L		20		20	80-120	
Thallium	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Vanadium	0.0100	0.0100 mg/L		20	75-125	20	80-120	
Zinc	0.0250	0.0250 mg/L		20	75-125	20	80-120	
Yttrium 371.029								

Metals, Target Analyte List in Soil (varies)

Preservation: [Group Analysis]

Container: **Amount Required:** **Hold Time:** 5 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD

No Analytes listed

Metals, Target Analyte List in Water (varies)

Preservation: [Group Analysis]

Container: **Amount Required:** **Hold Time:** 5 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike----		--Blank Spike / LCS--	
					%Rec	RPD	%Rec	RPD

No Analytes listed

Analytical Method Information

Printed: 07/29/2024 10:19 pm

Chromium, Hexavalent in Soil (EPA 7196A)

Preservation: Cool 4°C

Container: 06_4 oz. WM Clear Glass Cool to 4° C **Amount Required:** 25 g, **Hold Time:** 30 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Chromium, Hexavalent	0.350	0.500 mg/kg		35	75-125		18.8-206	

Chromium, Hexavalent in Water (EPA 7196A)

Preservation: Cool 4°C

Container: 10_250mL Plastic Cool to 4° C **Amount Required:** 100 mL **Hold Time:** 1 day

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Chromium, Hexavalent	0.0100	0.0100 mg/L		20	85-115		85-115	20

Analytical Method Information

Cyanide, Total in Soil (EPA 9014/9010C)

Preservation: Cool 4°C

Container: 06_4 oz. WM Clear Glass Cool to 4° C **Amount Required:** 10 g. **Hold Time:** 14 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Cyanide, total	0.500	0.500 mg/kg		15	79.6-107		72.9-112	

Cyanide, Total in Water (SM 4500 CN C-2016 / E-2016)

Preservation: Dechlorinate; NaOH to pH>10

Container: 10_250 mL Plastic NAOH pH>10 Cool 4° C **Amount Required:** 100 **Hold Time:** 14 days

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Cyanide, total	0.0100	0.0100 mg/L		15	79-105		80-120	

Analytical Method Information

PFAS, EPA 1633 Target List in Soil (EPA 1633 Draft 3)

Preservation: Cool 4°C

Container: 10_250mL HPDE Plastic PFAS Free **Amount Required:** 250 mL **Hold Time:** 90 days

					----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Reporting Limit**	**Surrogate %Rec**	**Duplicate RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
Perfluorobutanesulfonic acid (PFBS)	0.111	0.177 ug/kg		30	25-150	35	50-150	30
Perfluorohexanoic acid (PFHxA)	0.0530	0.200 ug/kg		30	25-150	35	50-150	30
Perfluoroheptanoic acid (PFHpA)	0.105	0.200 ug/kg		30	25-150	35	50-150	30
Perfluorohexanesulfonic acid (PFHxS)	0.179	0.183 ug/kg		30	25-150	35	50-150	30
Perfluorooctanoic acid (PFOA)	0.172	0.200 ug/kg		30	25-150	35	50-150	30
Perfluorooctanesulfonic acid (PFOS)	0.167	0.186 ug/kg		30	25-150	35	50-150	30
Perfluorononanoic acid (PFNA)	0.189	0.200 ug/kg		30	25-150	35	50-150	30
Perfluorodecanoic acid (PFDA)	0.191	0.200 ug/kg		30	25-150	35	50-150	30
Perfluoroundecanoic acid (PFUnA)	0.198	0.200 ug/kg		30	25-150	35	50-150	30
Perfluorododecanoic acid (PFDoA)	0.163	0.200 ug/kg		30	25-150	35	50-150	30
Perfluorotridecanoic acid (PFTrDA)	0.125	0.200 ug/kg		30	25-150	35	50-150	30
Perfluorotetradecanoic acid (PFTA)	0.103	0.200 ug/kg		30	25-150	35	50-150	30
N-MeFOSAA	0.148	0.200 ug/kg		30	25-150	35	50-150	30
N-EtFOSAA	0.194	0.200 ug/kg		30	25-150	35	50-150	30
Perfluoropentanoic acid (PFPeA)	0.109	0.400 ug/kg		30	25-150	35	50-150	30
Perfluoro-1-octanesulfonamide (FOSA)	0.146	0.200 ug/kg		30	25-150	35	50-150	30
Perfluoro-1-heptanesulfonic acid (PFHpS)	0.155	0.200 ug/kg		30	25-150	35	50-150	30
Perfluoro-1-decanesulfonic acid (PFDS)	0.191	0.193 ug/kg		30	25-150	35	50-150	30
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)	0.595	0.760 ug/kg		30	25-150	35	50-150	30
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	0.755	0.768 ug/kg		30	25-150	35	50-150	30
Perfluoro-n-butanoic acid (PFBA)	0.109	0.800 ug/kg		30	25-150	35	50-150	30
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	0.139	0.356 ug/kg		30	25-150	30	50-150	30
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	0.193	0.400 ug/kg		30	25-150	30	50-150	30
Perfluoro-4-oxapentanoic acid (PFMPA)	0.0620	0.400 ug/kg		30	25-150	30	50-150	30
Perfluoro-5-oxahexanoic acid (PFMBA)	0.0960	0.400 ug/kg		30	25-150	30	50-150	30
Perfluoro-1-pentanesulfonate (PFPeS)	0.157	0.188 ug/kg		30	25-150	30	50-150	30
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 FTS)	0.595	0.750 ug/kg		30	25-150	30	50-150	30
HFPO-DA (Gen-X)	0.608	0.800 ug/kg		30	25-150	30	50-150	30
11CL-PF3OUdS	0.311	0.756 ug/kg		30	25-150	30	50-150	30
9CL-PF3ONS	0.246	0.748 ug/kg		30	25-150	30	50-150	30
ADONA	0.174	0.756 ug/kg		30	25-150	30	50-150	30
Perfluorododecanesulfonic acid (PFDoS)	0.169	0.194 ug/kg		30	25-150	30	50-150	30
Perfluoro-1-nonanesulfonic acid (PFNS)	0.124	0.192 ug/kg		30	25-150	30	50-150	30
3-Perfluoropropyl propanoic acid (FPrPA)	0.634	1.00 ug/kg		30	25-150	30	50-150	30
3-Perfluoropentyl propanoic acid (FPePA)	2.10	5.00 ug/kg		30	25-150	30	50-150	30
3-Perfluoroheptyl propanoic acid (FHpPA)	1.50	5.00 ug/kg		30	25-150	30	50-150	30
N-MeFOSE	0.611	2.00 ug/kg		30	25-150	30	50-150	30
N-MeFOSA	0.180	0.200 ug/kg		30	25-150	30	50-150	30
N-EtFOSE	0.697	2.00 ug/kg		30	25-150	30	50-150	30
N-EtFOSA	0.198	0.200 ug/kg		30	25-150	30	50-150	30
Surr: M3PFBS			25-150					

Analytical Method Information

(Continued)

PFAS, EPA 1633 Target List in Soil (EPA 1633 Draft 3) (Continued)

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Surr: M5PFHxA			25-150					
Surr: M4PFHpA			25-150					
Surr: M3PFHxS			25-150					
Surr: Perfluoro-n-[13C8]octanoic acid (M8PFOA)			25-150					
Surr: M6PFDA			25-150					
Surr: M7PFUdA			25-150					
Surr: Perfluoro-n-[1,2-13C2]dodecanoic acid (MPFDoA)			25-150					
Surr: M2PFTeDA			10-150					
Surr: Perfluoro-n-[13C4]butanoic acid (MPFBA)			25-150					
Surr: Perfluoro-1-[13C8]octanesulfonic acid (M8PFOS)			25-150					
Surr: Perfluoro-n-[13C5]pentanoic acid (M5PFPeA)			25-150					
Surr: Perfluoro-1-[13C8]octanesulfonamide (M8FOSA)			10-150					
Surr: d3-N-MeFOSAA			25-150					
Surr: d5-N-EtFOSAA			25-150					
Surr: M2-6:2 FTS			25-200					
Surr: M2-8:2 FTS			25-200					
Surr: M9PFNA			25-150					
Surr: M2-4:2 FTS			25-150					
Surr: d-N-MeFOSA			25-150					
Surr: d-N-EtFOSA			25-150					
Surr: M3HFPO-DA			25-150					
Surr: d9-N-EtFOSE			25-150					
Surr: d7-N-MeFOSE			25-150					
M3PFBA								
MPFDA								
MPFHxA								
MPFHxS								
MPFNA								
MPFOA								
MPFOS								
Perfluoro-n-[13C9]nonanoic acid (M9PFNA)-EIS								
Perfluoro-n-[13C8]octanoic acid (M8PFOA)-EIS								
Perfluoro-n-[13C54]pentanoic acid (M5PFPeA)-EIS								
Perfluoro-n-[13C4]butanoic acid (MPFBA)-EIS								
Perfluoro-n-[1,2-13C2]dodecanoic acid (MPFDoA)-EIS								
Perfluoro-1-[13C8]octanesulfonic acid (M8PFOS)-EIS								
Perfluoro-1-[13C8]octanesulfonamide (M8FOSA)-EIS								
M7PFUdA-EIS								
M6PFDA-EIS								
M5PFHxA-EIS								
M4PFHpA-EIS								
M3PFHxS-EIS								
M3PFBS-EIS								
M3-HFPO-DA-EIS								
M2PFTeDA-EIS								

Analytical Method Information

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(Continued)

PFAS, EPA 1633 Target List in Soil (EPA 1633 Draft 3) (Continued)

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
M2-8-2FTS-EIS								
M2-6-2FTS-EIS								
M2-4-2FTS-EIS								
d9-NEtFOSE-EIS								
d7-NMeFOSE-EIS								
d5-NEtFOSA-EIS								
d5-N-EtFOSAA-EIS								
d3-NMeFOSA-EIS								
d3-N-MeFOSAA-EIS								
Taurodeoxycholic Acid (TDCA)								
Taurochenodeoxycholic Acid (TCDCA)								
Tauroursodeoxycholic Acid (TUDCA)								

PFAS, EPA 1633 Target List in Water (EPA 1633 Draft 3)

Preservation: Cool 4°C

Container: 09_500 mL Plastic PFAS Free **Amount Required:** 500 mL **Hold Time:** 28 days

					----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Reporting Limit**	**Surrogate %Rec**	**Duplicate RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
Perfluorobutanesulfonic acid (PFBS)	0.470	1.77 ng/L		30	25-150	35	50-150	30
Perfluorohexanoic acid (PFHxA)	0.350	2.00 ng/L		30	25-150	35	50-150	30
Perfluoroheptanoic acid (PFHpA)	0.710	2.00 ng/L		30	25-150	35	50-150	30
Perfluorohexanesulfonic acid (PFHxS)	0.680	1.83 ng/L		30	25-150	35	50-150	30
Perfluorooctanoic acid (PFOA)	0.420	2.00 ng/L		30	25-150	35	50-150	30
Perfluorooctanesulfonic acid (PFOS)	0.820	1.86 ng/L		30	25-150	35	50-150	30
Perfluorononanoic acid (PFNA)	0.520	2.00 ng/L		30	25-150	35	50-150	30
Perfluorodecanoic acid (PFDA)	0.750	2.00 ng/L		30	25-150	35	50-150	30
Perfluoroundecanoic acid (PFUnA)	1.13	2.00 ng/L		30	25-150	35	50-150	30
Perfluorododecanoic acid (PFDoA)	0.880	2.00 ng/L		30	25-150	35	50-150	30
Perfluorotridecanoic acid (PFTrDA)	0.740	2.00 ng/L		30	25-150	35	50-150	30
Perfluorotetradecanoic acid (PFTA)	0.690	2.00 ng/L		30	25-150	35	50-150	30
N-MeFOSAA	0.790	2.00 ng/L		30	25-150	35	50-150	30
N-EtFOSAA	1.03	2.00 ng/L		30	25-150	35	50-150	30
Perfluoropentanoic acid (PFPeA)	0.230	4.00 ng/L		30	25-150	35	50-150	30
Perfluoro-1-octanesulfonamide (FOSA)	0.880	2.00 ng/L		30	25-150	35	50-150	30
Perfluoro-1-heptanesulfonic acid (PFHpS)	0.910	1.91 ng/L		30	25-150	35	50-150	30
Perfluoro-1-decanesulfonic acid (PFDS)	1.32	1.93 ng/L		30	25-150	35	50-150	30
1H,1H,2H,2H-Perfluorooctanesulfonic acid (6:2 FTS)	1.06	7.60 ng/L		30	25-150	35	50-150	30
1H,1H,2H,2H-Perfluorodecanesulfonic acid (8:2 FTS)	2.05	7.68 ng/L		30	25-150	35	50-150	30
Perfluoro-n-butanoic acid (PFBA)	0.330	8.00 ng/L		30	25-150	35	50-150	30
Perfluoro(2-ethoxyethane)sulfonic acid (PFEESA)	0.500	3.56 ng/L		30	25-150	30	50-150	30
Perfluoro-3,6-dioxaheptanoic acid (NFDHA)	2.14	4.00 ng/L		30	25-150	30	50-150	30
Perfluoro-4-oxapentanoic acid (PFMPA)	0.250	4.00 ng/L		30	25-150	30	50-150	30
Perfluoro-5-oxahexanoic acid (PFMBA)	0.370	4.00 ng/L		30	25-150	30	50-150	30
Perfluoro-1-pentanesulfonate (PFPeS)	0.760	1.88 ng/L		30	25-150	30	50-150	30
1H,1H,2H,2H-Perfluorohexanesulfonic acid (4:2 FTS)	1.79	7.50 ng/L		30	25-150	30	50-150	30
HFPO-DA (Gen-X)	3.23	8.00 ng/L		30	25-150	30	50-150	30
11CL-PF3OUdS	1.38	7.56 ng/L		30	25-150	30	50-150	30
9CL-PF3ONS	0.700	7.48 ng/L		30	25-150	30	50-150	30
ADONA	0.530	7.56 ng/L		30	25-150	30	50-150	30
Perfluorododecanesulfonic acid (PFDoS)	0.930	1.94 ng/L		30	25-150	30	50-150	30
Perfluoro-1-nonanesulfonic acid (PFNS)	0.860	1.92 ng/L		30	25-150	30	50-150	30
3-Perfluoropropyl propanoic acid (FPrPA)	2.03	5.00 ng/L		30	25-150	30	50-150	30
3-Perfluoropentyl propanoic acid (FPePA)	7.33	25.0 ng/L		30	25-150	30	50-150	30
3-Perfluoroheptyl propanoic acid (FHpPA)	9.47	25.0 ng/L		30	25-150	30	50-150	30
N-MeFOSE	3.99	20.0 ng/L		30	25-150	30	50-150	30
N-MeFOSA	1.58	2.00 ng/L		30	25-150	30	50-150	30
N-EtFOSE	3.99	20.0 ng/L		30	25-150	30	50-150	30
N-EtFOSA	1.80	2.00 ng/L		30	25-150	30	50-150	30
Surr: M3PFBS			25-150					

Analytical Method Information

(Continued)

PFAS, EPA 1633 Target List in Water (EPA 1633 Draft 3) (Continued)

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
Surr: M5PFHxA			25-150					
Surr: M4PFHpA			25-150					
Surr: M3PFHxS			25-150					
Surr: Perfluoro-n-[13C8]octanoic acid (M8PFOA)			25-150					
Surr: M6PFDA			25-150					
Surr: M7PFUdA			25-150					
Surr: Perfluoro-n-[1,2-13C2]dodecanoic acid (MPFDoA)			25-150					
Surr: M2PFTeDA			10-150					
Surr: Perfluoro-n-[13C4]butanoic acid (MPFBA)			25-150					
Surr: Perfluoro-1-[13C8]octanesulfonic acid (M8PFOS)			25-150					
Surr: Perfluoro-n-[13C5]pentanoic acid (M5PFPeA)			25-150					
Surr: Perfluoro-1-[13C8]octanesulfonamide (M8FOSA)			10-150					
Surr: d3-N-MeFOSAA			25-150					
Surr: d5-N-EtFOSAA			25-150					
Surr: M2-6:2 FTS			25-200					
Surr: M2-8:2 FTS			25-200					
Surr: M9PFNA			25-150					
Surr: M2-4:2 FTS			25-150					
Surr: d-N-MeFOSA			25-150					
Surr: d-N-EtFOSA			25-150					
Surr: M3HFPO-DA			25-150					
Surr: d9-N-EtFOSE			25-150					
Surr: d7-N-MeFOSE			25-150					
M3PFBA								
MPFDA								
MPFHxA								
MPFHxS								
MPFNA								
MPFOA								
MPFOS								
Perfluoro-n-[13C9]nonanoic acid (M9PFNA)-EIS								
Perfluoro-n-[13C8]octanoic acid (M8PFOA)-EIS								
Perfluoro-n-[13C54]pentanoic acid (M5PFPeA)-EIS								
Perfluoro-n-[13C4]butanoic acid (MPFBA)-EIS								
Perfluoro-n-[1,2-13C2]dodecanoic acid (MPFDoA)-EIS								
Perfluoro-1-[13C8]octanesulfonic acid (M8PFOS)-EIS								
Perfluoro-1-[13C8]octanesulfonamide (M8FOSA)-EIS								
M7PFUdA-EIS								
M6PFDA-EIS								
M5PFHxA-EIS								
M4PFHpA-EIS								
M3PFHxS-EIS								
M3PFBS-EIS								
M3-HFPO-DA-EIS								
M2PFTeDA-EIS								

Analytical Method Information

(Continued)

PFAS, EPA 1633 Target List in Water (EPA 1633 Draft 3) (Continued)

Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	----Matrix Spike---- %Rec	RPD	--Blank Spike / LCS-- %Rec	RPD
M2-8-2FTS-EIS								
M2-6-2FTS-EIS								
M2-4-2FTS-EIS								
d9-NEtFOSE-EIS								
d7-NMeFOSE-EIS								
d5-NEtFOSA-EIS								
d5-N-EtFOSAA-EIS								
d3-NMeFOSA-EIS								
d3-N-MeFOSAA-EIS								
Taurodeoxycholic Acid (TDCA)								
Taurochenodeoxycholic Acid (TCDCA)								
Tauroursodeoxycholic Acid (TUDCA)								

Analytical Method Information

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Semi-Volatiles, 1,4-Dioxane 8270 SIM-Soil in Soil (EPA 8270D SIM)

Preservation: Cool 4°C

Container: 06_4 oz. WM Clear Glass Cool to 4° C **Amount Required:** 250 mL **Hold Time:** 14 days

					----Matrix Spike----		--Blank Spike / LCS--	
Analyte	**MDL**	**Reporting Limit**	**Surrogate %Rec**	**Duplicate RPD**	**%Rec**	**RPD**	**%Rec**	**RPD**
1,4-Dioxane	3.70	20.0 ug/kg		30	40-130	30	40-130	30
Surr: 1,4-Dioxane-d8	4.60		39-127.5					
1,2-Dichlorobenzene-d4								

Analytical Method Information

Semi-Volatiles, 1,4-Dioxane 8270 SIM-Aqueous in Water (EPA 8270E SIM)

Preservation: Cool 4°C

Container: 09_500 mL Glass Amber **Amount Required:** 500 mL **Hold Time:** 7 days

					----Matrix Spike----		--Blank Spike / LCS--	
Analyte	MDL	Reporting Limit	Surrogate %Rec	Duplicate RPD	%Rec	RPD	%Rec	RPD
1,4-Dioxane	0.200	0.300 ug/L		30	50-130	30	50-130	30
Surr: 1,4-Dioxane-d8	0.200		36.6-118					
1,2-Dichlorobenzene-d4								

APPENDIX J

RESPONSIBILITIES OF OWNER AND REMEDIAL PARTY

Responsibilities

The responsibilities for implementing the Site Management Plan ("SMP") for the Enclave on 241st Street Development (the "Site"), number C203077, are divided between the site owner(s) and a Remedial Party ("RP"), as defined below. The owner(s) is/are currently listed as:
Enclave 241 L.P (the "owner").

Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the term RP refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or site management, the NYSDEC and/or an agent acting on its behalf. The RPs are:

1. Enclave on 241st Street Development

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

Site Owner's Responsibilities:

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the site.
2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in a(n) Environmental Easement remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.
3) In the event the site is delisted, the owner remains bound by the Environmental Easement and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easement is still in place and has been complied with.
4) The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.
5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. If damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and the NYSDEC in accordance with the timeframes indicated in Section 1.3-Notifications.
6) If some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in Section 1.3-Notifications and coordinate the performance of necessary corrective actions with the RP.

7) The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site property. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 1.3 of the SMP. A change of use includes, but is not limited to, any activity that may increase direct human or environmental exposure (e.g., day care, school or park). A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8) In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

Remedial Party Responsibilities

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, PRRs and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3- Notifications of the SMP.

7) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

8) Any change in use, change in ownership, change in site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the NYSDEC project manager to discuss the need to update such documents.

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.