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REMEDIAL INVESTIGATION REPORT

FORMER FIEDLER WATERPROOFING & MASONRY SITE
91 BRUCKNER BOULEVARD
BRONX, NEW YORK
NYSDEC SITE C203160

by
Haley & Aldrich of New York
New York, New York

for
91 Bruckner Blvd LLC
162 Manhattan Avenue, 1st Floor
Brooklyn, New York 11206

File No. 0204520
October 2023

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PREPARED FOR
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Principal
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Certification

This report documents remedial investigation activities conducted at the Former Fiedler Waterproofing & Masonry Site, 91 Bruckner Boulevard, Bronx, New York.

I, Mari C. Conlon, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Report[1] was prepared in accordance with all statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

20 October 2023

Mari C. Conlon *Date*

[1] *Certification applies to remedial investigation activities conducted after the execution of the Brownfield Cleanup Agreement dated [27 January 2023].*

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List of Acronyms and Abbreviations

A	
AGS	Advanced Geological Service
AGV	Air Guidance Value
Alpha	Alpha Analytical Laboratories, Inc.
AMSL	Above Mean Sea Level
AOCs	Areas of Concern
ASP	Analytical Services Protocol
AST	Aboveground Storage Tank
AWQS	Ambient Water Quality Standards
B	
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below ground surface
BTEX	Benzene, toluene, ethylbenzene, total xylenes
C	
CHASP	Construction Health & Safety Plan
COCs	Contaminants of Concern
CP-51	Commissioners Policy-51 *(specifically "October 2010 NYSDEC Commissioners Policy 51")*
CSM	Conceptual Site Model
CVOCs	Chlorinated volatile organic compounds
D	
DER-10	Division of Environmental Remediation-10 *(specifically "May 2010 NYSDEC Technical Guidance for Site Investigation and Remediation")*
DOT	Department of Transportation
DPK	DPK Consulting
DUSR	Data Usability Summary Report
E	
ELAP	Environmental Laboratory Approval Program
EPA	U.S. Environmental Protection Agency
ESA	Environmental Site Assessment
ESI	Environmental Site Investigation
F	
ft bgs	feet below ground surface
FSP	Field Sampling Plan

List of Acronyms and Abbreviations (continued)

H	
Haley & Aldrich	Haley & Aldrich of New York
HASP	Health & Safety Plan
HAZWOPER	Health Administration Hazardous Waste Operations and Emergency Response
HREC	Historic Recognized Environmental Condition
I	
in.	inch
L	
Lakewood	Lakewood Environmental Services Corp.
L/min	Liters per minute
M	
MCL	Maximum Contaminant Limit
MDL	Method Detection Limit
mg/L	milligrams per liter
MS	Matrix Spike
MSD	Matrix Spike Duplicate
N	
NTU	Nephelometric turbidity units
6NYCRR	NYSDEC Title 6 of New York Codes, Rules and Regulations
NYCDOT	New York City Department of Transportation
NYCRR	New York Codes, Rules and Regulations
NY-MCL	New York Maximum Concentrations Limit
NYSDEC	New York State Department of Environmental Conservation
NYSDEC GV	February 2023 New York State Ambient Water Quality Standards and Guidance Values
NYSDOH	New York State Department of Health
O	
OSHA	Occupational Safety and Health Administration

List of Acronyms and Abbreviations (continued)

P	
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCE	Perchloroethene/tetrachloroethene
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctanesulfonic acid
PGWSCO	Protection of Groundwater Soil Cleanup Objective
PID	Photoionization Detector
PPB	Parts per billion
PPE	Personal protective equipment
PPM	Parts per million
PPT	Parts per trillion
PQL	Practical quantitation limit
PVC	Polyvinyl Chloride
PWGC	P.W. Grosser Consulting Inc.
Q	
QA/QC	Quality Assurance/Quality Control
QAO	Quality Assurance Officer
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
QHHEA	Qualitative Human Health Exposure Assessment
R	
RA	Remedial Action
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
RL	Reporting Limit
RRSCO	Restricted-Residential Soil Cleanup Objectives
S	
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SGV	NYSDEC Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA Water
Site	the property located at 91 Bruckner Boulevard, Bronx, New York
sq ft	square feet
SVOC	Semi-Volatile Organic Compound

List of Acronyms and Abbreviations (continued)

T

TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity characteristic leaching procedure
TOGS 1.1.1 AWQS	Technical and Operational Guidance Series 1.1.1 *(Specifically "June 1998 NYSDEC Division of Water Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values, Class GA for the protection of a source of drinking water modified per the April 2000 addendum")*

U

µg/kg	micrograms per kilogram
µg/L	micrograms per liter
µg/m^3	micrograms per cubic meter
UST	Underground Storage Tank
UUSCOs	Unrestricted Use Soil Cleanup Objectives

V

VOCs	Volatile Organic Compounds

1. Introduction

This Remedial Investigation Report (RIR) was developed by Haley & Aldrich of New York (Haley & Aldrich) on behalf of 91 Bruckner Blvd LLC, for the Former Fiedler Waterproofing & Masonry Site and proposed development of the property located at 91 Bruckner Boulevard, Bronx, New York (the Site). 91 Bruckner Blvd LLC was accepted into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) as a Volunteer. A Brownfield Cleanup Agreement (BCA) was executed by the NYSDEC and 91 Bruckner Blvd LLC (the “Volunteer”) on 27 January 2023 (BCP Site No. C203160).

The Site, identified as Block 2278 Lot 1 on the New York City tax map, is approximately 14,500 square feet (sq ft) in size and is bound by mixed-use and residential properties to the north, a warehouse designated as parking to the west, Bruckner Boulevard followed by Pulaski Park to the south, and Willis Avenue followed by a commercial restaurant to the east. The Site location is shown on Figure 1. Existing Site features are shown on Figure 2. The Site is vacant and previously contained a building covering the entire Site footprint which was razed in 2022.

The Site is currently located within a residential and manufacturing (R6A/M1-2) zoning district, part of a Special Mixed-Use (MX-1) district. The Site is located in a mixed-use area characterized by warehouses, open space, commercial, industrial, and residential buildings and is served by municipal water and sewer. The Volunteer plans to redevelop the Site for residential purposes (including affordable housing) consistent with current zoning.

The activities of this Remedial Investigation (RI) were completed from 13 February 2023 through 27 February 2023 in conformance with the Division of Environmental Remediation (DER) Technical Guidance for Site Investigation and Remediation (DER-10) and the NYSDEC-approved January 2023 Remedial Investigation Work Plan (RIWP), included in Appendix A.

1.1 PURPOSE AND OBJECTIVES

Previous environmental investigations conducted at the Site identified the presence of elevated concentrations of semi-volatile organic compounds (SVOCs) and metals in soil at the Site. In addition, the previous investigations detected chlorinated volatile organic compounds (CVOCs) in soil vapor at concentrations potentially indicating source material contamination which has not been identified to date. These findings will require additional investigation to ascertain and delineate any on-Site source(s).

Targeted soil, groundwater, and soil vapor sampling was conducted as part of this RI to clearly identify and delineate the nature and extent of contamination that exists at the Site. The RI was implemented upon acceptance of the Site into the BCP and approval of the RIWP. Results of the RI were used to confirm the results of the previous Site characterization activities, to seek to identify an on-Site source, and to determine a course for remedial action.

2. Site Background

2.1 SITE LOCATION AND DESCRIPTION

The Site, identified as Block 2278 Lot 1 on the New York City tax map, is approximately 14,500 sq ft in size and is bound by mixed-use and residential properties to the north, a warehouse designated as parking to the west, Bruckner Boulevard followed by Pulaski Park to the south, and Willis Avenue followed by a commercial restaurant to the east. The Site is located within a mixed-use area characterized by multi-story commercial and residential buildings and industrial-use buildings. The Site, currently at grade with the surrounding area, is capped with the former concrete building slab.

The Site is currently located within a residential and manufacturing (R6A/M1-2) zoning district, part of a Special Mixed-Use (MX-1) district. The Volunteer plans to redevelop the Site for residential purposes (including affordable housing) consistent with current zoning.

2.2 GEOLOGY AND HYDROGEOLOGY

Bedrock beneath the Site is identified as the Fordham Gneiss which consists of garnet-biotite-quartz-plagioclase gneiss and amphibolite. Depth to bedrock undulates in the south Bronx and is expected to range between 15-30 feet below ground surface (ft bgs). The Site is underlain by a layer of fill material consisting of brown silty sand with brick, concrete, and glass fragments. Fill extends to a maximum depth of 8 ft bgs. Brown silty sand with varying amounts of gravel, sand, and weathered rock underly the fill layer.

Groundwater was encountered at approximately 13.78 to 16.07 ft bgs, and groundwater flow internally beneath the Site is from north to south. Regional groundwater flow is based on review of information at nearby sites and local topographical and hydrological features; generally, the flow direction is assumed to be to the south towards the Harlem River.

2.3 SITE HISTORY

The Site was developed in the early 1900s with two five-story dwellings with storefronts on the western portion of the Site, while the eastern portion of the Site remained vacant. The Site was listed as an alcohol denaturing plant in the 1927 city directory. By the mid-1930s, the eastern portion of the Site began to be utilized as a “Universal Car Loading Freight Station” and an additional store was developed on the southwest corner of the Site. By the mid-1940s, the “Universal Car Loading Freight Station” was no longer in use and this portion of the Site began to be utilized for wine storage and bottling. The Site remained relatively unchanged until the early 1950s when the portion of the building utilized for wine storage and bottling began to be utilized as a garage. Historical sources identified three gasoline tanks of unknown capacity on the southeastern portion of the Site from 1951 to 2007. Since the 1970s, Fiedler Waterproofing and Masonry Company began operating at the Site and continued operations through the early 2000s. In the early 1980s, the three storefronts were demolished and redeveloped with a one-story building in 1985. The one-story warehouse previously encompassing the Site was razed in 2022.

2.4 REDEVELOPMENT PLANS

The planned project will consist of construction of a seven-story residential building with a full cellar encompassing a majority of the Site footprint (approximately 10,714 sq ft). The redevelopment will also include an affordable housing component.

3. Summary of Previous Investigations

To date, the following investigations have been performed at the Site.

1. September 2021 Phase I Environmental Site Assessment (ESA) Prepared by P.W. Grosser Consulting Inc. (PWGC)
2. October 2021 Phase II ESA Prepared by PWGC
3. March 2022 Limited Phase II Environmental Site Investigation (ESI) Prepared by Haley & Aldrich

September 2021 Phase I ESA
Prepared by PWGC

A Phase I ESA was performed by PWGC in September 2021 for the purpose of identifying Recognized Environmental Conditions (RECs) in connection with the Site.

The Phase I identified the following RECs at the Site:

- The Site formerly operated as an alcohol denaturing plant and is listed as such in the 1927 city directory.
- The Site was formerly utilized as a private garage since at least 1951. Three gasoline tanks of unknown capacity were identified on Sanborn maps from 1951 through 2007. During a Site walk, no evidence of the presence of tanks was observed, however, no closure documentation is available.
- The Site is listed in the LTANKS database and there are two closed NYSDEC spill cases (1008706 and 0511553) at the Site associated with a closed-in-place underground storage tank (UST). The spill cases were reported due to tank tightness failures of the same UST at the Site. The USTs were reportedly abandoned in place and replaced with two 275-gallon aboveground storage tanks (ASTs). A tank abandonment report stated that the USTs were purged, cut open, and cleaned out, then filled with sand and concrete. Confirmation soil samples were collected and indicated that there were no exceedances of soil cleanup standards. The LTANKS listing is considered a historical recognized environmental condition (HREC).
- NYSDEC Spill Incident 1400544 – A NYSDEC Spill Incident was reported at the east adjacent property, 95 Bruckner Boulevard, on 16 April 2014 due to light fuel oil encountered in soil in an excavation in the road in front of the property. Approximately 78 cubic yards of impacted soil was removed, and the spill case was closed on 15 May 2014. This is considered a REC since impacted soil was not delineated and residual contamination may be present.

October 2021 Phase II ESA
Prepared by PWGC

PWGC completed a geophysical survey of the Site to determine the presence of any subsurface anomalies. During the geophysical survey, PWGC and Advanced Geological Services, Inc. (AGS) identified the previously closed-in-place UST within the partial basement, as well as a prior excavation in the eastern warehouse. AGS did not identify any other anomalies or USTs at the Site. Following the survey, PWGC collected soil and soil vapor samples at the Site to investigate soil quality beneath the Site and evaluate the potential for vapor intrusion. Historic fill material was observed from surface grade to approximately 5 to 8 ft bgs, followed by silty sands with gravel to the terminal depth of each soil boring. Odors were not observed, and the photoionization detector (PID) readings ranged from 0.0 parts per million (ppm) to 1.6 ppm throughout the boring intervals. Refusal/bedrock was encountered at approximately 13 to 15 ft bgs. Groundwater was not encountered.

Field observations and analytical results identified shallow soil impacted with heavy metals and SVOCs at concentrations consistent with characteristics of urban fill found throughout the New York City area. SVOCs exceeding Unrestricted Use Soil Cleanup Objectives (UUSCOs) were detected in one shallow soil boring (SB002[0-2']). Additionally, total metals were observed widely distributed throughout the Site in urban fill, from the surface to a maximum depth of 8 ft bgs.

March 2022 Limited Phase II ESI Report
Prepared by Haley & Aldrich

Haley & Aldrich completed a limited sampling event at the Site to investigate soil and soil vapor quality at the Site. Urban fill generally consisted of brown to dark brown to light gray sand with varying amounts of gravel, brick, asphalt, glass, ceramic, and silt from surface grade to approximately 5 to 15 ft bgs in each soil boring. The urban fill layer was underlain by brown to light brown sand with varying amounts of silt, gravel, and intermittent clay lenses (clay observed in HA-05 only). Soil samples were collected continuously, characterized, and screened for visual and olfactory evidence of contamination such as staining and odors. Instrumental screening for the presence of organic vapors was performed using a PID. No apparent subsurface impacts were observed, including odors and staining, and PID readings of non-detect at 0.0 ppm were recorded. Groundwater was not encountered, and therefore not included as part of this investigation.

Field observations and analytical results identified historical urban fill contaminated with heavy metals and SVOCs (specifically polycyclic aromatic hydrocarbons [PAHs]) at concentrations consistent with characteristics of urban fill found throughout the New York City area. SVOCs and total metals exceeding Restricted-Residential Soil Cleanup Objectives (RRSCOs) were observed widely distributed throughout the Site in urban fill, up to 10 ft bgs. A lead hotspot was identified in soil collected from boring HA-06 from immediately below the concrete slab to a depth of 2 ft bgs in the north-central region of the Site. Sub-slab soil vapor is impacted with CVOCs; specifically, perchloroethene/tetrachloroethene (PCE) which was identified in one soil vapor sample in the southeast region of the Site.

Haley & Aldrich concluded that further delineation may be required to determine the extent of hazardous lead in soils in the north-central region of the Site. Considering PCE was identified in Site soil and soil vapor, an on-site source may exist.

4. Remedial Investigation Approach

4.1 PROJECT TEAM

A project team for the Site was created based on qualifications and experience with personnel suited for successful completion of the project.

The NYSDEC Case Manager was Shawn Roberts. The Case Manager was responsible for overseeing the successful completion of the project work and adherence to the work plan on behalf of NYSDEC.

The New York State Department of Health (NYSDOH) designated Case Manager, Christopher Budd, was responsible for overseeing the successful completion of the project work and adherence to the work plan on behalf of NYSDOH.

James Bellew was the Principal in Charge for this work. In this role, Mr. Bellew managed the day-to-day tasks including coordination and supervision of field engineers and scientists, communications with the Volunteer, and oversight of project schedule.

Mari Cate Conlon was the Project Manager and the Qualified Environmental Professional (QEP). In this role, Ms. Conlon was responsible for communications with the NYSDEC Case Manager regarding project status, schedule, issues, and updates for project work and for the overall completion of each task as per requirements outlined in this work plan and in accordance with the DER-10 guidance. In addition, Ms. Conlon also acted as the Quality Assurance Officer (QAO). The QAO assured the application and effectiveness of the Quality Assurance Project Plan (QAPP) by the analytical laboratory and the project staff, provided input to field team as to corrective actions that may be required as a result of the above-mentioned evaluations, and prepared and/or reviewed data validation and audit reports.

PJ DiNardo, Hailey Russell, and Nick Manzione were the field personnel responsible for implementing the field effort for this work. The field personnel implemented the work plan activities and directed the subcontractors to ensure successful completion of all field activities.

The drilling subcontractor utilized for this investigation was Lakewood Environmental Services, Corp. (Lakewood). Lakewood provided a track-mounted Geoprobe® and operator to implement the RI scope of work including, advancement of soil borings, installation of groundwater monitoring wells, and installation of soil vapor probes.

Soil and groundwater samples were collected into laboratory-prepared sample bottles (pre-preserved when appropriate), placed in ice-packed coolers maintained at approximately 4 degrees Celsius under standard chain of custody procedures, and transported to Alpha Analytical Laboratories, Inc. of Westborough, Massachusetts (Certification No. 07010T) (Alpha). Soil vapor samples were collected in laboratory-supplied batch certified-clean 2.7-liter SUMMA canisters with 2-hour flow controllers and transported under standard chain of custody to Alpha. Alpha is a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory (ELAP No. 11148) and was responsible for analyzing the samples as per the analyses and methods identified in this RIR.

4.2 SOIL BORING INSTALLATION AND SOIL SAMPLING

Soil samples were collected to meet NYSDEC DER-10 requirements for RIs, as well as to investigate and delineate the nature and extent of contamination identified at the Site during the previous subsurface investigations.

Fourteen soil borings were advanced to a depth of 15 ft bgs using a track-mounted direct-push drill rig (Geoprobe®) operated by a licensed operator provided by Lakewood, the drilling subcontractor. Additionally, three soil borings were advanced to a depth of 6 ft bgs in order to further investigate contaminated fill material observed throughout the Site. Soil samples were collected from dedicated acetate liners using a stainless-steel trowel or sampling spoon. Samples were collected using laboratory-provided clean bottle ware. Volatile organic compound (VOC) grab samples were collected using terra cores. Soil sampling locations are displayed in Figure 3.

Soils were logged continuously by field personnel using a Modified Burmister Method. Sampling methods are described in the QAPP included as Appendix D of the RIWP. The presence of staining, odors, and PID response was not observed. Soil boring logs are provided as Appendix B.

Soil samples representative of Site conditions were collected at 17 locations widely distributed across the Site, as shown in Figure 3. Soil samples were collected from the surface to 6 inches (in.) bgs, at variable intervals within the fill layer (between 6 to 8 ft bgs in the 14 borings proposed in the RIWP and advanced to 15 ft and between 2 to 5 ft bgs in the three additional borings advanced to 6 ft and installed to further evaluate fill extent) and from 12 to 14 ft bgs which is identified as the terminal depth of excavation for the project.

Haley & Aldrich collected 45 soil samples (plus quality assurance/quality control [QA/QC] samples) for laboratory analysis. Soil samples were collected in laboratory-supplied containers, which were relinquished under standard chain of custody protocol and delivered via courier to Alpha for analysis.

Alpha is a NYSDOH ELAP-certified laboratory. As detailed in Table 1, soil samples were analyzed for the following:

- Target Compound List (TCL) VOCs by United States Environmental Protection Agency (EPA) Method 8260C/5035;
- TCL SVOCs using EPA Method by 8270D;
- Total Analyte List (TAL) Metals by EPA Method 6010D/6020/Hg;
- TCL Polychlorinated Biphenyls (PCBs) by EPA Method 8082A;
- TCL Pesticides by EPA Method 8081B (for soil samples collected from the surface to 6 in. below the current surface grade only);
- Per- and polyfluoroalkyl substances (PFAS) by EPA Method 1633; and
- 1,4-dioxane by EPA Method 8270 SIM.

As per NYSDEC DER-10 requirements, all soil samples were analyzed for emerging contaminants. Soil samples collected for PFAS and 1,4-dioxane were collected in accordance with the protocols established in NYSDEC's "Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs" (November 2022).

Table 1 provides a summary of all soil samples collected as part of this RI, including sample locations, sample depths, and analyses performed on each sample.

4.3 PERMANENT MONITORING WELL INSTALLATION AND GROUNDWATER SAMPLING

The purpose of the groundwater sampling was to obtain current groundwater data and analyze for additional parameters (i.e., PFAS and 1,4-dioxane) to meet NYSDEC DER-10 requirements for RIs.

Seven, 2-in. diameter permanent monitoring wells were installed to approximately 20 to 25 ft bgs, with the exception of MW-09 as further detailed in Section 4.5. Each monitoring well was constructed using a 2-in. diameter polyvinyl chloride (PVC) riser pipe with 10-ft-long, 10-slot (0.01-in.) slotted screens. Each monitoring well was constructed with a 2-in. annular space installed using either #0 or #00 certified clean sand fill. Monitoring well screens were installed to straddle the water table. During a monitoring well gauging event concurrent with the well survey on 24 February 2023, groundwater was encountered at depths ranging from approximately 13.78 to 16.07 ft bgs. Well construction diagrams are provided in Appendix C.

Following installation, monitoring wells were developed by surging a pump in the well several times to pull fine-grained material from the well. Development was completed until the water turbidity was less than 50 nephetric turbidity units (NTU) or 10 well volumes were purged.

Haley & Aldrich collected six groundwater samples (plus QA/QC samples) for laboratory analysis including the following:

- TCL VOCs using EPA Method 8260B;
- TCL SVOCs using EPA Method 8270C;
- Total Metals using EPA Methods 6010/7471;
- PCBs using EPA Method 8082;
- Pesticides using EPA Methods 8081B;
- PFAS using EPA Method 1633; and
- 1,4-Dioxane using EPA Method 8270D SIM isotope dilution.

Groundwater samples collected for PFAS and 1,4-dioxane were collected in accordance with the protocols established in NYSDEC's "Sampling, Analysis, and Assessment of PFAS Under NYSDEC's Part 375 Remedial Programs" (November 2022).

Table 1 provides a summary of all groundwater samples collected as part of this RI, including sample locations, sample depths, and analyses performed on each sample.

Groundwater monitoring wells were sampled utilizing low-flow sampling procedures for groundwater sampling. Prior to sampling, the water level was measured from each monitoring well using an electronic water level meter. Groundwater from each well was purged using low pumping rates (less than 500 milliliters per minute) to limit drawdown of the water level. Dedicated disposable field equipment used at each well included high-density polyethylene and silicon tubing. Wells were purged until turbidity, pH, temperature, dissolved oxygen, and specific conductivity stabilized. Field measurements collected from the flow cell were logged and are included in Appendix D.

DPK Consulting (DPK) a New York State licensed surveyor, completed a monitoring well survey on 24 February 2023. During surveying, Haley & Aldrich performed a synoptic monitoring well gauging event. Groundwater flows from the north to south below the Site. Based on a review of localized topography, regional groundwater flow is generally presumed to be to the south towards the Harlem River. A survey map summarizing the data collected by the licensed surveyor and a summary of synoptic monitoring well gauging results are provided as Appendix E. A groundwater contour map is provided in Figure 4.

4.4 SOIL VAPOR PROBE INSTALLATION AND SOIL VAPOR SAMPLING

Soil vapor samples were collected in accordance with the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH October 2006). Eleven soil vapor probes were installed to 12 to 14 ft bgs, just below the proposed development depth and approximately 1 to 2 ft above the groundwater interface. The vapor implants were installed with a direct-push drilling rig (e.g., Geoprobe®) to advance a stainless-steel probe to the desired sample depth. To ensure the stainless-steel soil vapor probe was sealed completely to the surface using bentonite, a tracer gas test was used in accordance with NYSDOH protocols for QA/QC purposes to verify the integrity of the soil vapor probe seal. In addition, one to three implant volumes were purged prior to the collection of the soil vapor samples. Sampling occurred for the duration of two hours. At the conclusion of the sampling round, tracer gas monitoring was performed a second time to confirm the continued integrity of the probe seals.

Samples were collected in appropriately-sized Summa canisters that were certified clean by the laboratory. Samples were analyzed for VOCs using EPA Method TO-15. Flow rate for both purging and sampling did not exceed 0.2 liters per minute (L/min). Additional details regarding the sampling methods are described in the Field Sampling Plan (FSP) provided in the approved RIWP. Soil vapor sampling logs are provided in Appendix F.

Table 1 provides a summary of all soil vapor samples collected as part of this RI, including sample locations, sample depths, and analyses performed on each sample.

4.5 DEVIATIONS FROM THE RIWP

The RI was performed in substantial conformance with the approved RIWP with the exception of the following:

- MW-09 was installed to 16.75 ft. Multiple attempts were made in the central-eastern portion of the Site to install the monitoring well to 20 to 25 ft bgs, however, bedrock was encountered at shallower depths (15 to 17 ft bgs). As observed throughout the south Bronx, bedrock can undulate greatly within Site bounds as evidenced during the investigation. Groundwater was not encountered in the set MW-09 and a groundwater sample was unable to be collected due to lack of sample volume.
- MW-02 was relocated to the east of the original location due to subsurface conditions. Multiple refusals were encountered in the initially proposed location.
- The location of SB-06/SV-06 was relocated to the south of the original location due to subsurface conditions. Multiple refusals were encountered in the initially proposed location.
- An additional three soil borings (SB-15, SB-16, and SB-17) not initially proposed in the RIWP were installed on the eastern portion of the Site to further investigate the contaminated fill layer.

4.6 QUALITY ASSURANCE/QUALITY CONTROL

The RI was conducted in accordance with Haley & Aldrich's QAPP provided in the RIWP included as Appendix A. Haley & Aldrich's sampling program included several types of QA/QC samples and measures to ensure the usability of the data. QA/QC samples included equipment rinsate/field blanks, trip blanks, sample duplicates, and matrix spike/matrix spike duplicates (MS/MSDs).

When applicable, the sample result summary tables list the laboratory method detection limit (MDL) at which a compound was non-detectable. The laboratory results were reported to the sample-specific practical quantitation limit (PQL), equal to the sample-specific MDL, supported by the instrument calibrations.

The reliability of laboratory data is supported by compliance with sample holding times and laboratory MDLs below cleanup criteria. The accuracy and precision of the laboratory analytical methods were maintained by using calibration and calibration verification procedures, laboratory control samples, and surrogate, matrix, and analytical spikes. A review of the laboratory data packages indicates that holding times were met and no significant non-conformance issues were reported. Category B laboratory reports are provided in Appendix G. Data validation was completed as detailed in Section 6.5 and is summarized in Data Usability Summary Reports (DUSRs) included in Appendix H.

4.7 FIELD EQUIPMENT DECONTAMINATION

Downhole drilling equipment was decontaminated between each boring by washing with an Alconox-based solution. Decontamination wastewater was temporarily contained in a 5-gallon bucket and containerized in a 55-gallon drum for disposal. Handheld sampling equipment was decontaminated by hand in an Alconox-based solution and triple-rinsed with deionized water. Decontamination liquids were temporarily contained in 5-gallon buckets and then added to the drum at the end of each workday.

4.8 INVESTIGATION DERIVED WASTE

Following sample collection, boreholes were backfilled with soil cuttings and an upper bentonite plug. Boreholes were restored to grade with the surrounding area. Groundwater purged from the monitoring wells during development and sample collection was placed into a New York City Department of Transportation (NYCDOT)-approved 55-gallon drum pending offsite disposal. A total of one 55-gallon drum of purge water was produced during the investigation.

4.9 REPORTING

Daily reports were provided to NYSDEC and NYSDOH including a summary of Site activities, investigation progress updates, and photographs of field work. The daily reports are included in Appendix I.

5. Health and Safety

The work outlined above was completed under a Site-specific Health and Safety Plan (HASP) in accordance with Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations and Emergency Response (HAZWOPER) regulations. Work was completed in Modified Level D personal protective equipment (PPE). A copy of the HASP is included in Appendix F of the NYSDEC-approved RIWP.

6. Contaminants of Concern and Nature and Extent of Contamination

6.1 APPLICABLE STANDARDS

Soil analytical results were compared to NYSDEC Title 6 New York Codes, Rules and Regulations (NYCRR) Part 375 UUSCOs, Protection of Groundwater SCOs (PGWSCOs) and RRSCOs.

Groundwater analytical results were compared to 6 NYCRR Part 703.5 NYSDEC Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values (TOGS 1.1.1 AWQS).

6.2 SOIL SAMPLING RESULTS

Tables 2A through 2E summarize the analytical results from the RI soil sampling scope. Figure 5 provides the soil boring locations as well as a summary of soil data from the sampling event. Figure 6 provides a summary of the emerging contaminants detected in soil data from the sampling event. Details of the soil boring logs are provided in Appendix B.

Volatile Organic Compounds

VOCs were not detected in any soil samples above applicable standards.

Tetrachloroethene (PCE) was detected below applicable standards but above reporting limits in 20 soil samples, with six of those being estimated concentrations. Detections of PCE were reported in the 0 to 6 in., 6 to 8 ft, and 12 to 14 ft bgs intervals. The maximum reported concentration of PCE was 0.011 ppm in sample SB-04-03 (6-8').

Semi-Volatile Organic Compounds

Several SVOCs, specifically PAHs, were detected at concentrations exceeding the UUSCOs, RRSCOs, and/or PGWSCOs in soil samples collected from 0 to 6 in., 3 to 5 ft, and 6 to 8 ft bgs at the Site. Maximum concentrations of PAHs were greatest in soil sample DUP-01-02132023 collected from the 0 to 6-in. interval at the location of soil boring SB-14.

The maximum concentrations of compounds which exceeded UUSCOs, RRSCOs, and PGWSCOs included benzo(a)anthracene (52 ppm), benzo(a)pyrene (56 ppm), benzo(b)fluoranthene (56 ppm), benzo(k)fluoranthene (16 ppm), chrysene (47 ppm), and indeno(1,2,3-cd)pyrene (34 ppm).

The maximum concentrations of compounds which exceeded UUSCOs and RRSCOs included dibenzo(a,h)anthracene (6.2 ppm), fluoranthene (140 ppm), phenanthrene (150 ppm), and pyrene (130 ppm).

Dibenzofuran was also reported to exceed its UUSCO at a concentration of 10 ppm.

No other SVOCs were detected in any soil samples above applicable standards.

Metals

Several metals were detected at concentrations exceeding the UUSCOs, RRSCOs, and/or PGWSCOs in soil samples collected from 0 to 6 in., 3 to 5 ft, and 6 to 8 ft bgs at the Site. Concentrations of most metals were greatest in soil samples collected from the 0 to 6-in. interval.

Three metals were detected at concentrations exceeding the UUSCOs, RRSCOs, and PGWSCOs in surface soil samples collected at the Site. The maximum concentrations of barium (1,440 ppm) and lead (2,610 ppm) were reported in soil sample SB-13 (0-0.5') while the maximum concentration of mercury (2.98 ppm) was reported in soil sample SB-04-03 (6-8').

Five metals were detected at concentrations exceeding the UUSCOs and RRSCOs in shallow soil samples collected at the Site. The maximum concentrations of arsenic (15.2 ppm) and copper (242 ppm) were reported in soil sample SB-17 (3-5'). The maximum concentration of nickel (53.3 ppm) occurred in soil sample SB-01 (0-0.5'), selenium (4.24 ppm) in soil sample SB-04 (0-0.5'), and zinc (1,540 ppm) in soil sample SB-13 (0-0.5').

No other metals were detected in any soil samples above applicable standards.

Toxicity Characteristic Leaching Procedure (TCLP) Metals

Soil sample SB-05 (0-0.5') was collected from the location of previous soil sample HA-06_0-2, collected during the March 2022 Limited Phase II ESI, which had reported TCLP lead at a concentration of 13.4 milligrams per liter (mg/L). TCLP lead was reported in soil sample SB-05 (0-0.5') above the MDL but below the reporting limit (RL) at an estimated concentration of 0.195 mg/L.

The maximum concentration of TCLP lead was reported in soil sample SB-03 (6-8') at a concentration of 3.3 mg/L.

Polychlorinated Biphenyls

PCBs were not detected above applicable standards in any soil samples.

Pesticides

The pesticides dieldrin, 4,4-DDD, 4,4-DDE, and 4,4-DDT were detected at concentrations exceeding the UUSCOs in soil samples collected from 0 to 6 in., 6 to 8 ft, and 12 to 14 ft bgs at the Site. The concentrations of the four pesticides were reported at a maximum concentration in soil sample SB-02 (6-8') with the exception of dieldrin which was reported at a maximum concentration in soil sample SB-13 (0-0.5').

The maximum concentrations of compounds which exceeded UUSCOs included dieldrin (0.0242 ppm), 4,4-DDD (0.00876 ppm), 4,4-DDE (0.0653 ppm), and 4,4-DDT (0.247 ppm).

No other pesticides were detected in any soil samples above applicable standards.

Emerging Contaminants

1,4-dioxane was not detected above laboratory detection limits in any soil samples collected at the Site.

Perfluorooctanesulfonic acid (PFOS) was detected above the UUSCO at a maximum concentration of 2.53 parts per billion (ppb) in soil sample SB-04-03 (6-8'). Perfluorooctanoic acid (PFOA) was detected above the UUSCO at a maximum concentration of 0.313 ppb in SB-04-03 (6-8').

Total PFAS compounds ranged from non-detect to a maximum concentration of 2.84 ppb in soil sample SB-04-03 (6-8').

6.3 GROUNDWATER SAMPLING RESULTS

Tables 3A through 3E summarize the analytical results from the groundwater sampling event. Figure 7 provides the groundwater monitoring well locations as well as a summary of the groundwater data from the sampling event. Figure 8 provides a summary of the emerging contaminants detected in groundwater data from the sampling event. Groundwater sampling logs are provided in Appendix D. Of note, MW-01 and MW-11 did not achieve the turbidity of 50 NTU due to entrained sediment.

Volatile Organic Compounds

One VOC, PCE, was detected above the AWQS in groundwater sample MW-08 at a concentration of 8.0 micrograms per liter (µg/L).

No other VOCs were detected in any groundwater sample above the AWQS.

Semi-Volatile Organic Compounds

All groundwater samples reported one or multiple SVOCs, specifically PAHs, detected above the AWQS. The maximum concentrations all occurred in groundwater sample MW-11 and included benzo(a)anthracene (0.03 µg/L, which was also reported in MW-02 and MW-03), benzo(a)pyrene (0.03 µg/L), benzo(b)fluoranthene (maximum concentration 0.03 µg/L), benzo(k)fluoranthene (0.02 µg/L), chrysene (0.02 µg/L), and indeno(1,2,3-cd)pyrene (0.1 µg/L).

All of the reported SVOC exceedances of the AWQS were estimated concentrations, with the exception of indeno(1,2,3-cd)pyrene in MW-11.

No other SVOCs were detected in any groundwater sample above the AWQS.

Dissolved Metals

Three dissolved metals were detected above the AWQS in several groundwater samples including magnesium (maximum concentration 186,000 µg/L in MW-08), selenium (maximum concentration 23.1 µg/L in MW-03), and sodium (maximum concentration 179,000 µg/L in MW-03).

Chromium was reported above the AWQS at a concentration of 120.6 µg/L in MW-03. Additionally, manganese was reported above the AWQS at a concentration of 645.5 µg/L in MW-08.

No other dissolved metals were detected above the AWQS in any groundwater sample.

Total Metals

Six total metals were detected above the AWQS in several groundwater samples including iron (maximum concentration 5,880 µg/L in MW-03), lead (maximum concentration 84.47 µg/L in MW-03), magnesium (maximum concentration 242,000 µg/L in MW-03), manganese (maximum concentration of 677.5 µg/L in MW-08), selenium (maximum concentration 20.6 in MW-11), and sodium (maximum concentration 206,000 µg/L) in MW-03.

Additionally, chromium was reported above the AWQS at a concentration of 186.2 µg/L in MW-03.

No other total metals were detected above the AWQS in any groundwater sample.

Polychlorinated Biphenyls

PCBs were not detected above laboratory detection limits in any groundwater sample.

Pesticides

Pesticides were not detected above laboratory detection limits in any groundwater sample.

Emerging Contaminants

Emerging contaminants PFOA/PFAS were compared to the February 2023 New York State Ambient Water Quality Standards and Guidance Values (NYSDEC GV) for PFOA and PFOS. Figure 8 provides emerging contaminant data in groundwater.

1,4-dioxane was not detected in groundwater samples above laboratory detection limits with the exception of an estimated concentration of 0.0628 µg/L in MW-11.

PFOA was detected above the NYSDEC GV for protection of human health in a raw water source of 6.7 parts per trillion (ppt) in five groundwater samples at a maximum concentration of 248 ppt in MW-06. PFOS was detected above the NYSDEC GV for protection of human health in a raw water source of 2.7 ppt in five groundwater samples at a maximum concentration of 40.6 ppt in MW-11.

The total concentration of PFAS compounds ranged from 3.1 ppt in MW-08 to a maximum concentration of 255 ppt in MW-06.

6.4 SOIL VAPOR SAMPLING RESULTS

Table 4 provides a summary of the analytical results from the soil vapor sampling event. Figure 9 provides the soil vapor sampling locations as well as a summary of soil vapor data from the sampling event. The soil vapor purge log is provided in Appendix F and includes details on each soil vapor sample collected.

Four CVOCs, vinyl chloride, methylene chloride, 1,1,1-trichloroethane, and PCE, were detected in soil vapor samples at the Site. Vinyl chloride was detected in two soil vapor samples with a maximum reported concentration of 2.39 micrograms per cubic meter (µg/m^3) in SV-06. Methylene chloride was detected in three soil vapor samples with a maximum reported concentration of 14 µg/m^3 in SV-06.

1,1,1-Trichloroethane was detected in two soil vapor samples with a maximum reported concentration of 5.78 µg/m^3 in SV-05. PCE was detected in all 11 soil vapor samples with a maximum reported concentration of 232 µg/m^3 in SV-07.

Several petroleum-related VOCs were detected above laboratory detection limits in all soil vapor samples at the Site including, but not limited to, benzene, toluene, ethylbenzene, and total xylenes (BTEX). Total BTEX concentrations ranged from 473.1 µg/m^3 in SV-02 to maximum of 2,878.3 µg/m^3 in SV-05.

Total VOC concentrations ranged from 1,634.5 µg/m^3 in SV-01 to a maximum of 8,785.1 µg/m^3 in SV-05.

6.5 DATA VALIDATION

Data validation has been completed to confirm the compliance of methods with the protocols described in the NYSDEC Analytical Services Protocol (ASP). DUSRs are provided in Appendix H. The completeness goal of greater than 90 percent was exceeded as per the approved QAPP.

6.6 DATA USE

Validated analytical data, supplied in ASP Category B Data Packages in Appendix G, have been submitted to the NYSDEC EQuIS database in an Electronic Data Deliverable package.

7. Conceptual Site Model

7.1 AREAS OF CONCERN

The following areas of concern (AOCs) were identified at the Site:

AOC 1 – Site-Wide Fill in Subsurface Soils

Subsurface soils on Site are impacted with elevated concentrations of metals, SVOCs, and in some areas, pesticides. Contaminated fill material varies in depth throughout the Site extending to depths as great as 8 ft bgs.

AOC 2 – VOC Impacts to Groundwater

PCE was detected above the AWQS in groundwater sample MW-08 collected from the southeast portion of the Site during the RI.

AOC 3 – Soil Vapor Impacts

Based on a review of analytical data collected during this RI, VOCs including petroleum-related VOCs and CVOCs have partitioned from soil and/or groundwater into the vapor phase. Four CVOCs, including vinyl chloride, methylene chloride, 1,1,1-trichloroethane, and PCE, and petroleum-related VOCs were detected in soil vapor samples above laboratory detection limits.

7.2 POTENTIAL ON-SITE AND OFF-SITE SOURCES

Subsurface soils impacted with elevated concentrations of metals, SVOCs, and, in some areas, pesticides are consistent with characteristics of fill found throughout the New York City area. Fill material varies throughout the Site extending to depths as great as 8 ft bgs.

Elevated levels of PAHs and dissolved/total metals are present in groundwater. The source of PAH and metals impacts to groundwater is likely attributed to fill material. The source of CVOCs and petroleum-related VOCs in soil vapor likely resulted from former industrial operations.

8. Human Health and Environmental Risk Evaluation

8.1 HUMAN HEALTH RISK EVALUATION

A qualitative exposure assessment consists of characterizing the exposure setting (including the physical environment and potentially exposed human populations), identifying exposure pathways, and evaluating chemical fate and transport. An exposure pathway describes the means by which an individual may be exposed to contaminants originating from a site. An exposure pathway has the following five elements:

1. Receptor population;
2. Contaminant source;
3. Contaminant release and transport mechanism;
4. Point of exposure; and
5. Route of exposure.

An exposure pathway is complete when all five elements of an exposure pathway are documented; a potential exposure pathway exists when any one or more of the five elements comprising an exposure pathway is not documented but could reasonably occur. An exposure pathway may be eliminated from further evaluation when any one of the five elements comprising an exposure pathway does not exist in the present and will not exist in the future.

8.1.1 Receptor Population

The receptor population includes the people who are or may be exposed to contaminants at a point of exposure. The identification of potential human receptors is based on the characteristics of the Site, the surrounding land uses, and the probable future land uses. The Site is currently vacant and secured with locked fencing at Site entrances. Since the Site is vacant, individual receptors would currently only include construction/maintenance workers who may be employed to perform work on the property.

The Site owner plans to redevelop the property for residential purposes, consistent with surrounding property use and zoning. Exposed receptors under the future use scenario may comprise residents of the future building, indoor employees, outdoor employees (e.g., groundskeepers or maintenance staff), and construction workers who may be employed at or perform work on the property. Site visitors may also be considered receptors; however, their exposure would be similar to that of the indoor employees but at a lesser frequency and duration. In addition, residents or employees in off-site adjoining buildings have the potential to be exposed to vapors.

8.1.2 Contaminant Sources

The source of contamination is defined as either the source of contaminant release to the environment (such as a waste disposal area or point of discharge) or the impacted environmental medium (soil, air, water) at the point of exposure. Sections 6.0 and 7.0 discuss the Contaminants of Concern (COCs) present in the Site media at elevated concentrations above background levels. In general, these are metals, pesticides, and SVOCs (including PAHs) in soil; SVOCs (including PAHs), VOCs, and metals in groundwater; and petroleum-related VOCs and CVOCs in soil vapor.

8.1.3 Contaminant Release and Transport

Contaminant release and transport mechanisms carry contaminants from the source to points where people may be exposed and are specific to the type of contaminant and site use. For VOCs present in soil vapor, the potential exists for exposure through pathways associated with soil vapor intrusion. This would include the indoor vapor intrusion pathway (also referred to as "soil vapor intrusion").

8.1.4 Exposure Points, Routes, and Mechanisms

The point of exposure is a location where actual or potential human contact with a contaminated medium may occur. Based on the exceedances of RRSCOs for SVOCs and heavy metals in soil, CVOC and petroleum-related VOC concentrations above laboratory detection limits in soil vapor, and exceedances of AWQS for SVOCs, VOCs, and metals in groundwater, the point of exposure is defined as the entire Site.

The route of exposure is the manner in which a contaminant actually enters or contacts the human body (e.g., ingestion, inhalation, dermal absorption). Based on the types of receptors and points of exposure identified above, potential routes of exposure are listed below:

<u>Current Use Scenario:</u> The Site is currently vacant and secured with locked gates at Site entrances. Exposure to contaminated soil and contaminated groundwater is only possible during subsurface investigations and other activities that breach the concrete slab. Release and transport mechanisms include contaminated surface soil transported as dust, contaminated groundwater flow, and volatilization of contaminants from soil and/or groundwater into vapor phase.

- Site Visitors and Public Adjacent to the Site – inhalation, and incidental ingestion
- Construction/Utility/Site Investigation Worker – skin contact, inhalation, and incidental ingestion

<u>Construction/Remediation Scenario:</u> In the continued absence of engineering and institutional controls, there will be continued exposure pathways during construction/remediation specifically related to surface soil. Construction/remedial activities include excavation and off-site disposal of soil and dewatering of impacted groundwater (if required) to facilitate the construction of the foundation elements. Release and transport mechanisms include disturbed and exposed soil during excavation, contaminated soil transported as dust, contaminated groundwater flow (dewatering, if required), inhalation of dust from contaminated soil, and volatilization of contaminants from soil and/or groundwater into vapor phase.

- Site Visitors and Public Adjacent to Site –inhalation and incidental ingestion
- Construction/Utility/Remediation Worker – skin contact, inhalation, and incidental ingestion

Future Use Scenario: The anticipated remedial approach includes excavation of contaminated soil, dewatering of groundwater accumulated in excavations (if required), and installation of a composite cover system as part of construction. In the absence of engineering and institutional controls, release and transport mechanisms include contaminated groundwater and volatilization of contaminants from soil and/or groundwater into the vapor phase. Routes of future exposure include cracks in the foundation or slab or emergency repairs to the foundation walls or slab.

- Construction/Utility Worker – skin contact, inhalation, and incidental ingestion
- Occupant/Employee/Visitor – inhalation
- Public Adjacent to the Site – inhalation

Contaminant release and transport mechanisms carry contaminants from the source to points where people may be exposed and are specific to the type of contaminant and Site use. For the VOCs (including CVOCs and petroleum-related VOCs) present in soil vapor and groundwater, the potential exists for exposure through pathways associated with soil vapor migration. This would include the indoor vapor intrusion pathway also referred to as "soil vapor intrusion"). Additional pathways could include inhalation, and incidental ingestion of VOCs present in soil and groundwater when and where construction workers are involved in subsurface activities where volatiles are present at elevated concentrations.

Concerning the indoor air pathway, the NYSDOH has issued a guidance document for assessing potential impacts to indoor air via soil vapor intrusion. Soil vapor intrusion is a relevant transport mechanism under the current and future use scenario. Concerning skin contact, inhalation, and incidental ingestion of volatile organics present in soil and groundwater, the potential is low for exposure to VOCs for construction workers involved in subsurface activities where volatiles are present at elevated concentrations, given the results of the RI.

8.2 EXPOSURE ASSESSMENT

Based on the above assessment, the potential exposure pathways for the current and future use conditions are listed below.

Current Use Scenario

Site COCs include metals, pesticides, and PAHs in soil; PAHs, VOCs, and metals in groundwater; and petroleum-related VOCs and CVOCs in soil vapor. Under current conditions, the likelihood of exposure to soil or groundwater is limited, as the Site is secured with locked entrances. Site access is only granted to personnel associated with the planned development. Potable water for Kings County will continue to be sourced from reservoirs in the Catskill and Delaware Watersheds. All intrusive work on the Site is done in accordance with a Site-Specific HASP and donning of PPE.

Construction/Remediation Scenario:

The exposure element exists for each element during the construction/remediation phase. The overall risk will be minimized by the implementation of a Site-Specific Construction Health and Safety Plan (CHASP), localized monitoring of organic vapors, community air monitoring on the Site perimeter for particulates and VOCs, vapor and dust suppression techniques, installation of a stabilized entrance, cleaning truck tires and undercarriages, and donning of appropriate PPE. Additionally, the Site will be remediated under a Remedial Action Work Plan (RAWP) which will include a Soil Materials Management Plan that will highlight measures for PPE, covering of stockpiles, housekeeping, suppression techniques (particulates and vapor), and measures to prevent off-Site migration of contaminates. In addition, the Site will be secured and inaccessible to the public during remedial construction.

Future Use Scenario

Under the proposed future condition (after construction/remediation), residual contaminants may remain on-site depending on the remedy achieved. The remaining contaminants would include those listed in the current conditions. If contaminants remain on-site after construction/remediation, the route of exposure will be mitigated by proper installation of engineering controls such as Site capping system foundation and implementation of institutional controls such as land use and groundwater use restrictions.

8.3 FISH AND WILDLIFE IMPACT ANALYSIS

NYSDEC DER-10 requires an on-site and off-site Fish and Wildlife Resource Impact Analysis if the stipulated criteria are met. The Site, which was developed in the early 1900s and has been operated for alcohol denaturing, freight station, bottling, and waterproofing and masonry operations, is located in the Mott Haven neighborhood of Bronx, New York. The Site provides little or no wildlife habitat or food value and/or access to the detected subsurface contamination. No natural waterways are present on or adjacent to the Site. The proposed future use of the Site is for residential purposes. As such, no unacceptable ecological risks are expected under the current and future use scenarios.

9. Conclusions and Recommendations

9.1 CONCLUSIONS

Based on the results of this RI, the following conclusions have been identified:

- COCs at the Site are primarily metals, pesticides, and SVOCs (including PAHs) in soil; SVOCs (including PAHs), VOCs, and metals in groundwater; and petroleum-related VOCs and CVOCs in soil vapor.
- Shallow soils impacted with elevated concentrations of SVOCs including PAHs, metals, and in some areas, pesticides are consistent with characteristics of fill found throughout the New York City area. Contaminated soil and fill extend to approximately 5 to 8 ft bgs. Shallow soils will be excavated and removed as part of remedial action.
- Elevated levels of SVOCs, including PAHs, metals, and VOCs are present in groundwater. The source of PAH and metal impacts to groundwater is likely attributed to contaminated fill material. The source of VOCs is likely attributed to former operations at the Site.
- The source of CVOCs and petroleum-related VOCs in soil vapor is likely attributed to former industrial operations.

9.2 RECOMMENDATIONS

Based on the results of the RI, remedial action will be necessary to proceed with the anticipated redevelopment plan.

To address the AOCs, Haley & Aldrich is evaluating utilization of a combination of remedial techniques. Applicable strategies and technologies may include, but are not limited to, source removal and installation of engineering controls which will be detailed in a RAWP.

10. References

1. New York State Division of Water Technical and Operational Guidance Series (TOGS) (1.1.1) dated June 1998.

2. New York State Department of Health, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York, dated October 2006.

3. New York State Department of Environmental Conservation, Part 375 of Title 6 of the New York Compilation of Codes, Rules, and Regulations, Effective December 14, 2006.

4. Program Policy DER-10, "Technical Guidance for Site Investigation and Remediation," Prepared by New York State Department of Environmental Conservation, May 2010.

5. United States Environmental Protection Agency, Low Flow Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, EQASOP-GW 001, September 19, 2017.

6. Phase I Environmental Site Assessment – 91 Bruckner Boulevard / 402 E 134th Street, Bronx, New York. Prepared by P.W. Grosser Consulting Inc., prepared for Artist Construction, September 2021.

7. Phase II Environmental Site Assessment – 91 Bruckner Boulevard, Bronx, New York. Prepared by P.W. Grosser Consulting Inc., prepared for Artist Construction, October 2021.

8. Limited Phase II Environmental Site Investigation Report. 91 Bruckner Boulevard, Bronx, New York. Prepared by Haley & Aldrich of New York, prepared for Artist Construction, 8 March 2022.

9. Brownfield Cleanup Program Application. Former Fiedler Masonry & Waterproofing Site, Bronx, New York. Prepared for 91 Bruckner Blvd LLC by Haley & Aldrich of New York for submission to the New York State Department of Environmental Conservation. Submitted in September 2022.

10. New York State Department of Environmental Conservation, Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs, dated November 2022.

11. New York State Division of Water, 2023 Addendum to June 1998 Division of Water Technical and Operational Guidance Series No. 1.1.1., dated February 2023.

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TABLES

Table 1
Sampling and Analysis Plan
91 Bruckner Boulevard
Remedial Investigation

Sample Location	Sample Depth	Target Compound List VOCs (8260B)	Target Compound List SVOCs (8270C)	Total Analyte List Metals (6010)	PCBs (8082)	Pesticides (8081B)	PFAS (1633)	1,4-Dioxane (8270 SIM)	TCLP Lead	VOCs (TO-15)
SOIL										
SB-01	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-02	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-03	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-04	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-05	0-0.5'	X	X	X	X	X	X	X	X	
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-06	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-07	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		

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Sampling and Analysis Plan
91 Bruckner Boulevard
Remedial Investigation

Sample Location	Sample Depth	Target Compound List VOCs (8260B)	Target Compound List SVOCs (8270C)	Total Analyte List Metals (6010)	PCBs (8082)	Pesticides (8081B)	PFAS (1633)	1,4-Dioxane (8270 SIM)	TCLP Lead	VOCs (TO-15)
SB-08	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-09	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-10	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-11	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-12	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-13	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-14	0-0.5'	X	X	X	X	X	X	X		
	6-8'	X	X	X	X	X	X	X		
	12-14'	X	X	X	X	X	X	X		
SB-15	2-4'	X	X	X						
SB-16	2-4'	X	X	X						
SB-17	3-5'	X	X	X						

Table 1.
Sampling and Analysis Plan
91 Bruckner Boulevard
Remedial Investigation

Sample Location	Sample Depth	Target Compound List VOCs (8260B)	Target Compound List SVOCs (8270C)	Total Analyte List Metals (6010)	PCBs (8082)	Pesticides (8081B)	PFAS (1633)	1,4-Dioxane (8270 SIM)	TCLP Lead	VOCs (TO-15)
GROUNDWATER										
MW-01	Groundwater interface	X	X	X (TOTAL AND DISSOLVED)	X	X	X	X		
MW-02	Groundwater interface	X	X	X (TOTAL AND DISSOLVED)	X	X	X	X		
MW-03	Groundwater interface	X	X	X (TOTAL AND DISSOLVED)	X	X	X	X		
MW-06	Groundwater interface	X	X	X (TOTAL AND DISSOLVED)	X	X	X	X		
MW-08	Groundwater interface	X	X	X (TOTAL AND DISSOLVED)	X	X	X	X		
MW-11	Groundwater interface	X	X	X (TOTAL AND DISSOLVED)	X	X	X	X		
SOIL VAPOR										
SV-01	12-14 ft bgs									X
SV-02	12-14 ft bgs									X
SV-03	12-14 ft bgs									X
SV-04	12-14 ft bgs									X
SV-05	12-14 ft bgs									X
SV-06	12-14 ft bgs									X
SV-07	12-14 ft bgs									X
SV-08	12-14 ft bgs									X
SV-09	12-14 ft bgs									X
SV-10	12-14 ft bgs									X
SV-11	12-14 ft bgs									X

Table 1.
Sampling and Analysis Plan
91 Bruckner Boulevard
Remedial Investigation

Sample Location	Sample Depth	Target Compound List VOCs (8260B)	Target Compound List SVOCs (8270C)	Total Analyte List Metals (6010)	PCBs (8082)	Pesticides (8081B)	PFAS (1633)	1,4-Dioxane (8270 SIM)	TCLP Lead	VOCs (TO-15)
QA/QC										
DUP-01-02132023	PARENT SAMPLE = SB-14 (0-0.5')	X	X	X	X	X	X	X		
DUP-02-02132023	PARENT SAMPLE = SB-14 (6-8')	X	X	X	X	X	X	X		
DUP-03-02132023	PARENT SAMPLE = SB-14 (12-14')	X	X	X	X	X	X	X		
SB-09MS-01	PARENT SAMPLE = SB-09 (6-8')	X	X	X	X	X	X	X		
SB-09MSD-01	PARENT SAMPLE = SB-09 (6-8')	X	X	X	X	X	X	X		
SB-04MS-02 (0-0.5')	PARENT SAMPLE = SB-04 (0-0.5')	X	X	X	X	X	X	X		
SB-04MSD-02 (0-0.5')	PARENT SAMPLE = SB-04 (0-0.5')	X	X	X	X	X	X	X		
SB-04MS03 (6-8')	PARENT SAMPLE = SB-04 (6-8')	X	X	X	X	X	X	X		
SB-04MSD03 (6-8')	PARENT SAMPLE = SB-04 (6-8')	X	X	X	X	X	X	X		
FB-01-02132023	N/A	X	X	X	X	X	X	X		
FB-02-02142023	N/A	X	X	X	X	X	X	X		
FB-03-02152023	N/A	X	X	X	X	X	X	X		
FB-04-02172023	N/A	X	X	X	X	X	X	X		
TB-02132023	N/A	X								
TB-02142023	N/A	X								
TB-02152023	N/A	X								
TB-04-02172023	N/A	X								
TB-05-02242023	N/A	X								
TB--06-02272023	N/A	X								

Notes:
VOCs - Volatile Organic Compounds
SVOCs - Semi-volatile Organic Compounds
PCBs - Polychlorinated biphenyls
PFAS - Per- and Polyfluoroalkyl Substances
QA/QC samples include:
MS/MSD - 1 for every 20 samples
Field Duplicate - 1 for every 20 samples
Trip Blanks - 1 per cooler of samples to be analyzed for VOCs
Field Blanks - 1 for every 20 samples

Table 2a
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-01 SB-01 (0-0.5) 02/14/2023 L2307869-04	SB-01 SB-01 (6-8) 02/14/2023 L2307869-05	SB-01 SB-01 (12-14) 02/14/2023 L2307869-06	SB-02 SB-02 (0-0.5) 02/15/2023 L2308181-04 L2310887-08	SB-02 SB-02 (6-8) 02/15/2023 L2308181-05	SB-02 SB-02 (12-14) 02/15/2023 L2308181-06	SB-03 SB-03 (0-0.5) 02/15/2023 L2308181-01 L2310887-06	SB-03 SB-03 (6-8) 02/15/2023 L2308181-02 L2310887-07	SB-03 SB-03 (12-14) 02/15/2023 L2308181-03	SB-04 SB-04 (0-0.5) 02/13/2023 L2307700-06 L2310887-03	SB-04 SB-04 (6-8) 02/13/2023 L2307700-07	SB-04 SB-04 (12-14) 02/13/2023 L2307700-08
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
1,1,1-Trichloroethane	0.68	NA	100	NA	0.68	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
1,1-Dichloroethane	0.27	NA	26	NA	0.27	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
1,1-Dichloroethene	0.33	NA	100	NA	0.33	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
1,1-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,2,4,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,2,4-Trimethylbenzene	3.6	NA	52	NA	3.6	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,2-Dibromo-3-chloropropane (DBCP)	NA	NA	NA	NA	NA	NA	ND (0.0033)	ND (0.0028)	ND (0.0023)	ND (0.0037)	ND (0.0024)	ND (0.0031)	ND (0.003)	ND (0.003)	ND (0.0028)	ND (0.0035)	ND (0.0026)	ND (0.0025)
1,2-Dibromoethane (Ethylene Dibromide)	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,2-Dichloroethane	0.02	NA	3.1	NA	0.02	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
1,3,5-Trimethylbenzene	8.4	NA	52	NA	8.4	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,3-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,4-Diethylbenzene	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.087)	ND (0.075)	ND (0.063)	ND (0.098)	ND (0.064)	ND (0.084)	ND (0.081)	ND (0.079)	ND (0.075)	ND (0.092)	ND (0.07)	ND (0.067)
2,2-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
2-Butanone (Methyl Ethyl Ketone)	0.12	NA	100	NA	0.12	NA	ND (0.011)	ND (0.0094)	ND (0.0078)	ND (0.012)	ND (0.008)	ND (0.01)	ND (0.01)	ND (0.0099)	ND (0.0093)	ND (0.012)	ND (0.0088)	ND (0.0084)
2-Chlorotoluene	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
2-Hexanone (Methyl Butyl Ketone)	NA	NA	NA	NA	NA	NA	ND (0.011)	ND (0.0094)	ND (0.0078)	ND (0.012)	ND (0.008)	ND (0.01)	ND (0.01)	ND (0.0099)	ND (0.0093)	ND (0.012)	ND (0.0088)	ND (0.0084)
2-Phenylbutane (sec-Butylbenzene)	11	NA	100	NA	11	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
4-Chlorotoluene	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	NA	NA	NA	NA	NA	NA	ND (0.011)	ND (0.0094)	ND (0.0078)	ND (0.012)	ND (0.008)	ND (0.01)	ND (0.01)	ND (0.0099)	ND (0.0093)	ND (0.012)	ND (0.0088)	ND (0.0084)
Acetone	0.05	NA	100	NA	0.05	NA	ND (0.011)	0.0088 J	0.012	ND (0.012)	0.0077 J	ND (0.01)	ND (0.01)	ND (0.0099)	0.005 J	ND (0.012)	ND (0.0088)	ND (0.0084)
Acrylonitrile	NA	NA	NA	NA	NA	NA	ND (0.0044)	ND (0.0038)	ND (0.0031)	ND (0.0049)	ND (0.0032)	ND (0.0042)	ND (0.0041)	ND (0.004)	ND (0.0037)	ND (0.0046)	ND (0.0035)	ND (0.0033)
Benzene	0.06	NA	4.8	NA	0.06	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	0.0004 J	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
Bromobenzene	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Bromodichloromethane	NA	NA	NA	NA	NA	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
Bromoform	NA	NA	NA	NA	NA	NA	ND (0.0044)	ND (0.0038)	ND (0.0031)	ND (0.0049)	ND (0.0032)	ND (0.0042)	ND (0.0041)	ND (0.004)	ND (0.0037)	ND (0.0046)	ND (0.0035)	ND (0.0033)
Bromomethane (Methyl Bromide)	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Carbon disulfide	NA	NA	NA	NA	NA	NA	ND (0.011)	ND (0.0094)	ND (0.0078)	ND (0.012)	ND (0.008)	ND (0.01)	ND (0.01)	ND (0.0099)	ND (0.0093)	ND (0.012)	ND (0.0088)	ND (0.0084)
Carbon tetrachloride	0.76	NA	2.4	NA	0.76	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
Chlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)

Table 2a
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-01	SB-01	SB-01	SB-02	SB-02	SB-02	SB-03	SB-03	SB-03	SB-04	SB-04	SB-04
Sample Name							SB-01 (0-0.5)	SB-01 (6-8)	SB-01 (12-14)	SB-02 (0-0.5)	SB-02 (6-8)	SB-02 (12-14)	SB-03 (0-0.5)	SB-03 (6-8)	SB-03 (12-14)	SB-04 (0-0.5)	SB-04 (6-8)	SB-04 (12-14)
Sample Date							02/14/2023	02/14/2023	02/14/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023
Lab Sample ID							L2307869-04	L2307869-05	L2307869-06	L2308181-04 L2310887-08	L2308181-05	L2308181-06	L2308181-01 L2310887-06	L2308181-02 L2310887-07	L2308181-03	L2307700-06 L2310887-03	L2307700-07	L2307700-08
Chlorobromomethane	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Chloroethane	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Chloroform (Trichloromethane)	0.37	NA	49	NA	0.37	NA	ND (0.0016)	ND (0.0014)	0.0002 J	ND (0.0018)	ND (0.0012)	ND (0.0016)	ND (0.0015)	ND (0.0015)	ND (0.0014)	ND (0.0017)	ND (0.0013)	ND (0.0012)
Chloromethane (Methyl Chloride)	NA	NA	NA	NA	NA	NA	ND (0.0044)	ND (0.0038)	ND (0.0031)	ND (0.0049)	ND (0.0032)	ND (0.0042)	ND (0.0041)	ND (0.004)	ND (0.0037)	ND (0.0046)	ND (0.0035)	ND (0.0033)
cis-1,2-Dichloroethene	0.25	NA	100	NA	0.25	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
Cymene (p-Isopropyltoluene)	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
Dibromochloromethane	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
Dibromomethane	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Dichlorodifluoromethane (CFC-12)	NA	NA	NA	NA	NA	NA	ND (0.011)	ND (0.0094)	ND (0.0078)	ND (0.012)	ND (0.008)	ND (0.01)	ND (0.01)	ND (0.0099)	ND (0.0093)	ND (0.012)	ND (0.0088)	ND (0.0084)
Ethyl Ether	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Ethylbenzene	1	NA	41	NA	1	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.0044)	ND (0.0038)	ND (0.0031)	ND (0.0049)	ND (0.0032)	ND (0.0042)	ND (0.0041)	ND (0.004)	ND (0.0037)	ND (0.0046)	ND (0.0035)	ND (0.0033)
Isopropylbenzene (Cumene)	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
m,p-Xylenes	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Methyl Tert Butyl Ether (MTBE)	0.93	NA	100	NA	0.93	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Methylene chloride (Dichloromethane)	0.05	NA	100	NA	0.05	NA	ND (0.0054)	ND (0.0047)	ND (0.0039)	ND (0.0062)	ND (0.004)	ND (0.0052)	ND (0.0051)	ND (0.005)	ND (0.0047)	ND (0.0058)	ND (0.0044)	ND (0.0042)
Naphthalene	12	NA	100	NA	12	NA	ND (0.0044)	ND (0.0038)	ND (0.0031)	ND (0.0049)	ND (0.0032)	ND (0.0042)	ND (0.0041)	ND (0.004)	ND (0.0037)	ND (0.0046)	ND (0.0035)	ND (0.0033)
n-Butylbenzene	12	NA	100	NA	12	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
n-Propylbenzene	3.9	NA	100	NA	3.9	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
o-Xylene	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
Styrene	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
tert-Butylbenzene	5.9	NA	100	NA	5.9	NA	ND (0.0022)	ND (0.0019)	ND (0.0016)	ND (0.0025)	ND (0.0016)	ND (0.0021)	ND (0.002)	ND (0.002)	ND (0.0019)	ND (0.0023)	ND (0.0018)	ND (0.0017)
Tetrachloroethene	1.3	NA	19	NA	1.3	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	0.00066	ND (0.00044)	ND (0.00042)
Toluene	0.7	NA	100	NA	0.7	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
trans-1,2-Dichloroethene	0.19	NA	100	NA	0.19	NA	ND (0.0016)	ND (0.0014)	ND (0.0012)	ND (0.0018)	ND (0.0012)	ND (0.0016)	ND (0.0015)	ND (0.0015)	ND (0.0014)	ND (0.0017)	ND (0.0013)	ND (0.0012)
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	ND (0.0054)	ND (0.0047)	ND (0.0039)	ND (0.0062)	ND (0.004)	ND (0.0052)	ND (0.0051)	ND (0.005)	ND (0.0047)	ND (0.0058)	ND (0.0044)	ND (0.0042)
Trichloroethene	0.47	NA	21	NA	0.47	NA	ND (0.00054)	ND (0.00047)	ND (0.00039)	ND (0.00062)	ND (0.0004)	ND (0.00052)	ND (0.00051)	ND (0.0005)	ND (0.00047)	ND (0.00058)	ND (0.00044)	ND (0.00042)
Trichlorofluoromethane (CFC-11)	NA	NA	NA	NA	NA	NA	ND (0.0044)	ND (0.0038)	ND (0.0031)	ND (0.0049)	ND (0.0032)	ND (0.0042)	ND (0.0041)	ND (0.004)	ND (0.0037)	ND (0.0046)	ND (0.0035)	ND (0.0033)
Vinyl acetate	NA	NA	NA	NA	NA	NA	ND (0.011)	ND (0.0094)	ND (0.0078)	ND (0.012)	ND (0.008)	ND (0.01)	ND (0.01)	ND (0.0099)	ND (0.0093)	ND (0.012)	ND (0.0088)	ND (0.0084)
Vinyl chloride	0.02	NA	0.9	NA	0.02	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
Xylene (Total)	1.6	NA	100	NA	0.26	NA	ND (0.0011)	ND (0.00094)	ND (0.00078)	ND (0.0012)	ND (0.0008)	ND (0.001)	ND (0.001)	ND (0.00099)	ND (0.00093)	ND (0.0012)	ND (0.00088)	ND (0.00084)
SUM of CVOCs	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00066	ND	ND

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2a
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-04-02	SB-04-03	SB-05	SB-05	SB-05	SB-06	SB-06	SB-06	SB-07	SB-07	SB-07	SB-08	SB-08
Sample Name							SB-04-02 (0-0.5)	SB-04-03 (6-8)	SB-05 (0-0.5)	SB-05 (6-8)	SB-05 (12-14)	SB-06 (0-0.5)	SB-06 (6-8)	SB-06 (12-14)	SB-07 (0-0.5)	SB-07 (6-8)	SB-07 (12-14)	SB-08 (0-0.5)	SB-08 (6-8)
Sample Date							02/17/2023	02/17/2023	02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/14/2023	02/14/2023
Lab Sample ID							L2308771-01	L2308771-02	L2307700-09	L2307700-22	L2307700-23	L2308181-10	L2308181-11	L2308181-12	L2307700-27	L2307700-28	L2307700-29	L2307869-01	L2307869-02
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	ND (0.00053)	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
1,1,1-Trichloroethane	0.68	NA	100	NA	0.68	NA	ND (0.00053)	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	ND (0.00053) J	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
1,1-Dichloroethane	0.27	NA	26	NA	0.27	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
1,1-Dichloroethene	0.33	NA	100	NA	0.33	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
1,1-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00053)	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,2,4,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,2,4-Trimethylbenzene	3.6	NA	52	NA	3.6	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,2-Dibromo-3-chloropropane (DBCP)	NA	NA	NA	NA	NA	NA	ND (0.0032) J	ND (0.0056)	ND (0.0031)	ND (0.0028)	ND (0.0034)	ND (0.003)	ND (0.0026)	ND (0.0025)	ND (0.0024)	ND (0.0027)	ND (0.0024)	ND (0.0027)	ND (0.0025)
1,2-Dibromoethane (Ethylene Dibromide)	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,2-Dichloroethane	0.02	NA	3.1	NA	0.02	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
1,3,5-Trimethylbenzene	8.4	NA	52	NA	8.4	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,3-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00053)	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,4-Diethylbenzene	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.084)	ND (0.15)	ND (0.082)	ND (0.074)	ND (0.09)	ND (0.08)	ND (0.068)	ND (0.067)	ND (0.065)	ND (0.071)	ND (0.064)	ND (0.071)	ND (0.066)
2,2-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
2-Butanone (Methyl Ethyl Ketone)	0.12	NA	100	NA	0.12	NA	ND (0.01)	ND (0.018)	ND (0.01)	ND (0.0093)	ND (0.011)	ND (0.0099)	ND (0.0085)	ND (0.0083)	ND (0.0081)	ND (0.0089)	ND (0.008)	ND (0.0089)	ND (0.0082)
2-Chlorotoluene	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
2-Hexanone (Methyl Butyl Ketone)	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.018)	ND (0.01)	ND (0.0093)	ND (0.011)	ND (0.0099)	ND (0.0085)	ND (0.0083)	ND (0.0081)	ND (0.0089)	ND (0.008)	ND (0.0089)	ND (0.0082)
2-Phenylbutane (sec-Butylbenzene)	11	NA	100	NA	11	NA	ND (0.001) J	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
4-Chlorotoluene	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.018)	ND (0.01)	ND (0.0093)	ND (0.011)	ND (0.0099)	ND (0.0085)	ND (0.0083)	ND (0.0081)	ND (0.0089)	ND (0.008)	ND (0.0089)	ND (0.0082)
Acetone	0.05	NA	100	NA	0.05	NA	0.012 J	0.029 J	ND (0.01)	ND (0.0093)	ND (0.011)	ND (0.015)	ND (0.0085)	ND (0.0083)	ND (0.0081)	ND (0.0089)	ND (0.008)	0.012	0.0087 J
Acrylonitrile	NA	NA	NA	NA	NA	NA	ND (0.0042)	ND (0.0074)	ND (0.0041)	ND (0.0037)	ND (0.0045)	ND (0.004)	ND (0.0034)	ND (0.0033)	ND (0.0032)	ND (0.0036)	ND (0.0032)	ND (0.0036)	ND (0.0033)
Benzene	0.06	NA	4.8	NA	0.06	NA	ND (0.00053)	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
Bromobenzene	NA	NA	NA	NA	NA	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Bromodichloromethane	NA	NA	NA	NA	NA	NA	ND (0.00053)	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
Bromoform	NA	NA	NA	NA	NA	NA	ND (0.0042) J	ND (0.0074)	ND (0.0041)	ND (0.0037)	ND (0.0045)	ND (0.004)	ND (0.0034)	ND (0.0033)	ND (0.0032)	ND (0.0036)	ND (0.0032)	ND (0.0036)	ND (0.0033)
Bromomethane (Methyl Bromide)	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Carbon disulfide	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.018)	ND (0.01)	ND (0.0093)	ND (0.011)	ND (0.0099)	ND (0.0085)	ND (0.0083)	ND (0.0081)	ND (0.0089)	ND (0.008)	ND (0.0089)	ND (0.0082)
Carbon tetrachloride	0.76	NA	2.4	NA	0.76	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
Chlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.00053) J	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)

Table 2a
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-04-02 SB-04-02 (0-0.5) 02/17/2023 L2308771-01	SB-04-03 SB-04-03 (6-8) 02/17/2023 L2308771-02	SB-05 SB-05 (0-0.5) 02/13/2023 L2307700-09	SB-05 SB-05 (6-8) 02/13/2023 L2307700-22	SB-05 SB-05 (12-14) 02/13/2023 L2307700-23	SB-06 SB-06 (0-0.5) 02/15/2023 L2308181-10	SB-06 SB-06 (6-8) 02/15/2023 L2308181-11	SB-06 SB-06 (12-14) 02/15/2023 L2308181-12	SB-07 SB-07 (0-0.5) 02/13/2023 L2307700-27	SB-07 SB-07 (6-8) 02/13/2023 L2307700-28	SB-07 SB-07 (12-14) 02/13/2023 L2307700-29	SB-08 SB-08 (0-0.5) 02/14/2023 L2307869-01	SB-08 SB-08 (6-8) 02/14/2023 L2307869-02
Chlorobromomethane	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Chloroethane	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Chloroform (Trichloromethane)	0.37	NA	49	NA	0.37	NA	ND (0.0016)	ND (0.0028)	ND (0.0015)	ND (0.0014)	ND (0.0017)	ND (0.0015)	ND (0.0013)	ND (0.0012)	ND (0.0012)	ND (0.0013)	ND (0.0012)	ND (0.0013)	ND (0.0012)
Chloromethane (Methyl Chloride)	NA	NA	NA	NA	NA	NA	ND (0.0042)	ND (0.0074)	ND (0.0041)	ND (0.0037)	ND (0.0045)	ND (0.004)	ND (0.0034)	ND (0.0033)	ND (0.0032)	ND (0.0036)	ND (0.0032)	ND (0.0036)	ND (0.0033)
cis-1,2-Dichloroethene	0.25	NA	100	NA	0.25	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00053)	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
Cymene (p-Isopropyltoluene)	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
Dibromochloromethane	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
Dibromomethane	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Dichlorodifluoromethane (CFC-12)	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.018)	ND (0.01)	ND (0.0093)	ND (0.011)	ND (0.0099)	ND (0.0085)	ND (0.0083)	ND (0.0081)	ND (0.0089)	ND (0.008)	ND (0.0089)	ND (0.0082)
Ethyl Ether	NA	NA	NA	NA	NA	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Ethylbenzene	1	NA	41	NA	1	NA	ND (0.001) J	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.0042) J	ND (0.0074)	ND (0.0041)	ND (0.0037)	ND (0.0045)	ND (0.004)	ND (0.0034)	ND (0.0033)	ND (0.0032)	ND (0.0036)	ND (0.0032)	ND (0.0036)	ND (0.0033)
Isopropylbenzene (Cumene)	NA	NA	NA	NA	NA	NA	ND (0.001) J	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
m,p-Xylenes	NA	NA	NA	NA	NA	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Methyl Tert Butyl Ether (MTBE)	0.93	NA	100	NA	0.93	NA	ND (0.0021)	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Methylene chloride (Dichloromethane)	0.05	NA	100	NA	0.05	NA	ND (0.0053)	ND (0.0093)	ND (0.0051)	ND (0.0046)	ND (0.0056)	ND (0.005)	ND (0.0042)	ND (0.0042)	ND (0.0041)	ND (0.0044)	ND (0.004)	ND (0.0044)	ND (0.0041)
Naphthalene	12	NA	100	NA	12	NA	ND (0.0042) J	ND (0.0074)	ND (0.0041)	ND (0.0037)	ND (0.0045)	ND (0.004)	ND (0.0034)	ND (0.0033)	ND (0.0032)	ND (0.0036)	ND (0.0032)	ND (0.0036)	ND (0.0033)
n-Butylbenzene	12	NA	100	NA	12	NA	ND (0.001) J	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
n-Propylbenzene	3.9	NA	100	NA	3.9	NA	ND (0.001) J	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
o-Xylene	NA	NA	NA	NA	NA	NA	ND (0.001) J	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
Styrene	NA	NA	NA	NA	NA	NA	ND (0.001) J	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
tert-Butylbenzene	5.9	NA	100	NA	5.9	NA	ND (0.0021) J	ND (0.0037)	ND (0.002)	ND (0.0018)	ND (0.0022)	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.0018)	ND (0.0016)
Tetrachloroethene	1.3	NA	19	NA	1.3	NA	0.0011 J	0.011	0.0042	0.0005	ND (0.00056)	0.00033 J	0.00039 J	ND (0.00042)	0.0024	0.0007	0.0017	ND (0.00044)	0.00018 J
Toluene	0.7	NA	100	NA	0.7	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
trans-1,2-Dichloroethene	0.19	NA	100	NA	0.19	NA	ND (0.0016)	ND (0.0028)	ND (0.0015)	ND (0.0014)	ND (0.0017)	ND (0.0015)	ND (0.0013)	ND (0.0012)	ND (0.0012)	ND (0.0013)	ND (0.0012)	ND (0.0013)	ND (0.0012)
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	ND (0.0053) J	ND (0.0093)	ND (0.0051)	ND (0.0046)	ND (0.0056)	ND (0.005)	ND (0.0042)	ND (0.0042)	ND (0.0041)	ND (0.0044)	ND (0.004)	ND (0.0044)	ND (0.0041)
Trichloroethene	0.47	NA	21	NA	0.47	NA	ND (0.00053)	ND (0.00093)	ND (0.00051)	ND (0.00046)	ND (0.00056)	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00041)	ND (0.00044)	ND (0.0004)	ND (0.00044)	ND (0.00041)
Trichlorofluoromethane (CFC-11)	NA	NA	NA	NA	NA	NA	ND (0.0042) J	ND (0.0074)	ND (0.0041)	ND (0.0037)	ND (0.0045)	ND (0.004)	ND (0.0034)	ND (0.0033)	ND (0.0032)	ND (0.0036)	ND (0.0032)	ND (0.0036)	ND (0.0033)
Vinyl acetate	NA	NA	NA	NA	NA	NA	ND (0.01) J	ND (0.018)	ND (0.01)	ND (0.0093)	ND (0.011)	ND (0.0099)	ND (0.0085)	ND (0.0083)	ND (0.0081)	ND (0.0089)	ND (0.008)	ND (0.0089)	ND (0.0082)
Vinyl chloride	0.02	NA	0.9	NA	0.02	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
Xylene (Total)	1.6	NA	100	NA	0.26	NA	ND (0.001)	ND (0.0018)	ND (0.001)	ND (0.00093)	ND (0.0011)	ND (0.00099)	ND (0.00085)	ND (0.00083)	ND (0.00081)	ND (0.00089)	ND (0.0008)	ND (0.00089)	ND (0.00082)
SUM of CVOCs	NA	NA	NA	NA	NA	NA	ND	0.011	0.0042	0.0005	ND	ND	ND	ND	0.0024	0.0007	0.0017	ND	ND

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2a
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name / Sample Name / Sample Date / Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-08	SB-09	SB-09	SB-09	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11	SB-12	SB-12	SB-12
Sample Name							SB-08 (12-14)	SB-09 (0-0.5)	SB-09 (6-8)	SB-09 (12-14)	SB-10 (0-0.5)	SB-10 (6-8)	SB-10 (12-14)	SB-11 (0-0.5)	SB-11 (6-8)	SB-11 (12-14)	SB-12 (0-0.5)	SB-12 (6-8)	SB-12 (12-14)
Sample Date							02/14/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023
Lab Sample ID							L2307869-03	L2308181-13	L2308181-14	L2308181-15	L2307700-11	L2307700-12	L2307700-13	L2308181-07 L2310887-09	L2308181-08 L2310887-10	L2308181-09	L2307700-20 L2310887-05	L2307700-01 L2310887-01	L2307700-02
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
1,1,1-Trichloroethane	0.68	NA	100	NA	0.68	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	ND (0.00039)	ND (0.00039) J	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
1,1-Dichloroethane	0.27	NA	26	NA	0.27	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
1,1-Dichloroethene	0.33	NA	100	NA	0.33	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
1,1-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016) J	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,2,4,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016) J	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016) J	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,2,4-Trimethylbenzene	3.6	NA	52	NA	3.6	NA	ND (0.0015)	ND (0.0016) J	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,2-Dibromo-3-chloropropane (DBCP)	NA	NA	NA	NA	NA	NA	ND (0.0023)	ND (0.0023) J	ND (0.0024)	ND (0.003)	ND (0.0028)	ND (0.0022)	ND (0.0023)	ND (0.0026)	ND (0.003)	ND (0.0026)	ND (0.0027)	ND (0.0029)	ND (0.0025)
1,2-Dibromoethane (Ethylene Dibromide)	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,2-Dichloroethane	0.02	NA	3.1	NA	0.02	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
1,3,5-Trimethylbenzene	8.4	NA	52	NA	8.4	NA	ND (0.0015)	ND (0.0016) J	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,3-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,4-Diethylbenzene	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.062)	ND (0.063)	ND (0.065)	ND (0.079)	ND (0.076)	ND (0.058)	ND (0.062)	ND (0.069)	ND (0.079)	ND (0.068)	ND (0.073)	ND (0.077)	ND (0.068)
2,2-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
2-Butanone (Methyl Ethyl Ketone)	0.12	NA	100	NA	0.12	NA	ND (0.0077)	ND (0.0078)	ND (0.0082)	ND (0.0099)	ND (0.0095)	ND (0.0073)	ND (0.0078)	ND (0.0087)	ND (0.0099)	ND (0.0086)	ND (0.0091)	ND (0.0097)	ND (0.0085)
2-Chlorotoluene	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
2-Hexanone (Methyl Butyl Ketone)	NA	NA	NA	NA	NA	NA	ND (0.0077)	ND (0.0078)	ND (0.0082)	ND (0.0099)	ND (0.0095)	ND (0.0073)	ND (0.0078)	ND (0.0087)	ND (0.0099)	ND (0.0086)	ND (0.0091)	ND (0.0097)	ND (0.0085)
2-Phenylbutane (sec-Butylbenzene)	11	NA	100	NA	11	NA	ND (0.00077)	ND (0.00078) J	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
4-Chlorotoluene	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	NA	NA	NA	NA	NA	NA	ND (0.0077)	ND (0.0078)	ND (0.0082)	ND (0.0099)	ND (0.0095)	ND (0.0073)	ND (0.0078)	ND (0.0087)	ND (0.0099)	ND (0.0086)	ND (0.0091)	ND (0.0097)	ND (0.0085)
Acetone	0.05	NA	100	NA	0.05	NA	0.0064 J	ND (0.0078)	ND (0.0091)	ND (0.0099)	ND (0.0095)	ND (0.0073)	ND (0.0078)	ND (0.018)	ND (0.0099)	ND (0.0086)	0.011	ND (0.0097)	ND (0.0085)
Acrylonitrile	NA	NA	NA	NA	NA	NA	ND (0.0031)	ND (0.0031)	ND (0.0033)	ND (0.004)	ND (0.0038)	ND (0.0029)	ND (0.0031)	ND (0.0035)	ND (0.004)	ND (0.0034)	ND (0.0036)	ND (0.0039)	ND (0.0034)
Benzene	0.06	NA	4.8	NA	0.06	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
Bromobenzene	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016) J	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Bromodichloromethane	NA	NA	NA	NA	NA	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
Bromoform	NA	NA	NA	NA	NA	NA	ND (0.0031)	ND (0.0031)	ND (0.0033)	ND (0.004)	ND (0.0038)	ND (0.0029)	ND (0.0031)	ND (0.0035)	ND (0.004)	ND (0.0034)	ND (0.0036)	ND (0.0039)	ND (0.0034)
Bromomethane (Methyl Bromide)	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Carbon disulfide	NA	NA	NA	NA	NA	NA	ND (0.0077)	ND (0.0078)	ND (0.0082)	ND (0.0099)	ND (0.0095)	ND (0.0073)	ND (0.0078)	ND (0.0087)	ND (0.0099)	ND (0.0086)	ND (0.0091)	ND (0.0097)	ND (0.0085)
Carbon tetrachloride	0.76	NA	2.4	NA	0.76	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
Chlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)

Table 2a
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-08	SB-09	SB-09	SB-09	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11	SB-12	SB-12	SB-12
Sample Name							SB-08 (12-14)	SB-09 (0-0.5)	SB-09 (6-8)	SB-09 (12-14)	SB-10 (0-0.5)	SB-10 (6-8)	SB-10 (12-14)	SB-11 (0-0.5)	SB-11 (6-8)	SB-11 (12-14)	SB-12 (0-0.5)	SB-12 (6-8)	SB-12 (12-14)
Sample Date							02/14/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023
Lab Sample ID							L2307869-03	L2308181-13	L2308181-14	L2308181-15	L2307700-11	L2307700-12	L2307700-13	L2308181-07 L2310887-09	L2308181-08 L2310887-10	L2308181-09	L2307700-20 L2310887-05	L2307700-01 L2310887-01	L2307700-02
Chlorobromomethane	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Chloroethane	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Chloroform (Trichloromethane)	0.37	NA	49	NA	0.37	NA	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0015)	ND (0.0014)	ND (0.0011)	ND (0.0012)	ND (0.0013)	ND (0.0015)	ND (0.0013)	ND (0.0014)	ND (0.0014)	ND (0.0013)
Chloromethane (Methyl Chloride)	NA	NA	NA	NA	NA	NA	ND (0.0031)	ND (0.0031)	ND (0.0033)	ND (0.004)	ND (0.0038)	ND (0.0029)	ND (0.0031)	ND (0.0035)	ND (0.004)	ND (0.0034)	ND (0.0036)	ND (0.0039)	ND (0.0034)
cis-1,2-Dichloroethene	0.25	NA	100	NA	0.25	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
Cymene (p-Isopropyltoluene)	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
Dibromochloromethane	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
Dibromomethane	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Dichlorodifluoromethane (CFC-12)	NA	NA	NA	NA	NA	NA	ND (0.0077)	ND (0.0078)	ND (0.0082)	ND (0.0099)	ND (0.0095)	ND (0.0073)	ND (0.0078)	ND (0.0087)	ND (0.0099)	ND (0.0086)	ND (0.0091)	ND (0.0097)	ND (0.0085)
Ethyl Ether	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Ethylbenzene	1	NA	41	NA	1	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.0031)	ND (0.0031) J	ND (0.0033)	ND (0.004)	ND (0.0038)	ND (0.0029)	ND (0.0031)	ND (0.0035)	ND (0.004)	ND (0.0034)	ND (0.0036)	ND (0.0039)	ND (0.0034)
Isopropylbenzene (Cumene)	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078) J	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
m,p-Xylenes	NA	NA	NA	NA	NA	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Methyl Tert Butyl Ether (MTBE)	0.93	NA	100	NA	0.93	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Methylene chloride (Dichloromethane)	0.05	NA	100	NA	0.05	NA	ND (0.0039)	ND (0.0039)	ND (0.0041)	ND (0.0049)	ND (0.0047)	ND (0.0036)	ND (0.0039)	ND (0.0043)	ND (0.005)	ND (0.0043)	ND (0.0045)	ND (0.0048)	ND (0.0042)
Naphthalene	12	NA	100	NA	12	NA	ND (0.0031)	ND (0.0031) J	ND (0.0033)	ND (0.004)	ND (0.0038)	ND (0.0029)	ND (0.0031)	ND (0.0035)	ND (0.004)	ND (0.0034)	ND (0.0036)	ND (0.0039)	ND (0.0034)
n-Butylbenzene	12	NA	100	NA	12	NA	ND (0.00077)	ND (0.00078) J	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
n-Propylbenzene	3.9	NA	100	NA	3.9	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
o-Xylene	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
Styrene	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
tert-Butylbenzene	5.9	NA	100	NA	5.9	NA	ND (0.0015)	ND (0.0016)	ND (0.0016)	ND (0.002)	ND (0.0019)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.002)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0017)
Tetrachloroethene	1.3	NA	19	NA	1.3	NA	0.00033 J	0.00029 J	0.0014	0.00031 J	ND (0.00047)	ND (0.00036)	ND (0.00039)	0.0021	0.00036 J	ND (0.00043)	0.00043 J	0.0014	ND (0.00042)
Toluene	0.7	NA	100	NA	0.7	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
trans-1,2-Dichloroethene	0.19	NA	100	NA	0.19	NA	ND (0.0012)	ND (0.0012)	ND (0.0012)	ND (0.0015)	ND (0.0014)	ND (0.0011)	ND (0.0012)	ND (0.0013)	ND (0.0015)	ND (0.0013)	ND (0.0014)	ND (0.0014)	ND (0.0013)
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	ND (0.0039)	ND (0.0039) J	ND (0.0041)	ND (0.0049)	ND (0.0047)	ND (0.0036)	ND (0.0039)	ND (0.0043)	ND (0.005)	ND (0.0043)	ND (0.0045)	ND (0.0048)	ND (0.0042)
Trichloroethene	0.47	NA	21	NA	0.47	NA	ND (0.00039)	ND (0.00039)	ND (0.00041)	ND (0.00049)	ND (0.00047)	ND (0.00036)	ND (0.00039)	ND (0.00043)	ND (0.0005)	ND (0.00043)	ND (0.00045)	ND (0.00048)	ND (0.00042)
Trichlorofluoromethane (CFC-11)	NA	NA	NA	NA	NA	NA	ND (0.0031)	ND (0.0031)	ND (0.0033)	ND (0.004)	ND (0.0038)	ND (0.0029)	ND (0.0031)	ND (0.0035)	ND (0.004)	ND (0.0034)	ND (0.0036)	ND (0.0039)	ND (0.0034)
Vinyl acetate	NA	NA	NA	NA	NA	NA	ND (0.0077)	ND (0.0078)	ND (0.0082)	ND (0.0099)	ND (0.0095)	ND (0.0073)	ND (0.0078)	ND (0.0087)	ND (0.0099)	ND (0.0086)	ND (0.0091)	ND (0.0097)	ND (0.0085)
Vinyl chloride	0.02	NA	0.9	NA	0.02	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
Xylene (Total)	1.6	NA	100	NA	0.26	NA	ND (0.00077)	ND (0.00078)	ND (0.00082)	ND (0.00099)	ND (0.00095)	ND (0.00073)	ND (0.00078)	ND (0.00087)	ND (0.00099)	ND (0.00086)	ND (0.00091)	ND (0.00097)	ND (0.00085)
SUM of CVOCs	NA	NA	NA	NA	NA	NA	ND	ND	0.0014	ND	ND	ND	ND	0.0021	ND	ND	ND	0.0014	ND

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2a
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name / Sample Name / Sample Date / Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-13	SB-13	SB-13	SB-14	SB-14	SB-14	SB-14	SB-14	SB-14	SB-15	SB-16	SB-17
Sample Name							SB-13 (0-0.5)	SB-13 (6-8)	SB-13 (12-14)	SB-14 (0-0.5)	DUP-01-02132023	SB-14 (6-8)	DUP-02-02132023	SB-14 (12-14)	DUP-03-02132023	SB-15 (2-4)	SB-16 (2-4)	SB-17 (3-5)
Sample Date							02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/27/2023	02/27/2023	02/27/2023
Lab Sample ID							L2307700-03 L2310887-02	L2307700-04	L2307700-05	L2307700-14 L2310887-04	L2307700-17	L2307700-15	L2307700-18	L2307700-16	L2307700-19	L2310326-01	L2310326-02	L2310326-03
1,1,1,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
1,1,1-Trichloroethane	0.68	NA	100	NA	0.68	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
1,1,2,2-Tetrachloroethane	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
1,1,2-Trichloroethane	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
1,1-Dichloroethane	0.27	NA	26	NA	0.27	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
1,1-Dichloroethene	0.33	NA	100	NA	0.33	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
1,1-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,2,3-Trichloropropane	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,2,4,5-Tetramethylbenzene	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,2,4-Trimethylbenzene	3.6	NA	52	NA	3.6	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	0.00037 J	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,2-Dibromo-3-chloropropane (DBCP)	NA	NA	NA	NA	NA	NA	ND (0.003)	ND (0.0025)	ND (0.0025)	ND (0.0029)	ND (0.0031)	ND (0.0027)	ND (0.0025)	ND (0.0021)	ND (0.0024)	ND (0.0025)	ND (0.0032)	ND (0.0038)
1,2-Dibromoethane (Ethylene Dibromide)	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,2-Dichloroethane	0.02	NA	3.1	NA	0.02	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
1,2-Dichloroethene (total)	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
1,2-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
1,3,5-Trimethylbenzene	8.4	NA	52	NA	8.4	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	0.00031 J	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,3-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,4-Diethylbenzene	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.079)	ND (0.067)	ND (0.067)	ND (0.077)	ND (0.083)	ND (0.073)	ND (0.067)	ND (0.057)	ND (0.064)	ND (0.066)	ND (0.084)	ND (0.1)
2,2-Dichloropropane	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
2-Butanone (Methyl Ethyl Ketone)	0.12	NA	100	NA	0.12	NA	ND (0.0099)	ND (0.0084)	ND (0.0084)	ND (0.0097)	ND (0.01)	ND (0.0091)	ND (0.0084)	ND (0.0071)	ND (0.008)	ND (0.0083)	ND (0.01)	ND (0.013)
2-Chlorotoluene	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
2-Hexanone (Methyl Butyl Ketone)	NA	NA	NA	NA	NA	NA	ND (0.0099)	ND (0.0084)	ND (0.0084)	ND (0.0097)	ND (0.01)	ND (0.0091)	ND (0.0084)	ND (0.0071)	ND (0.008)	ND (0.0083)	ND (0.01)	ND (0.013)
2-Phenylbutane (sec-Butylbenzene)	11	NA	100	NA	11	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
4-Chlorotoluene	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	NA	NA	NA	NA	NA	NA	ND (0.0099)	ND (0.0084)	ND (0.0084)	ND (0.0097)	ND (0.01)	ND (0.0091)	ND (0.0084)	ND (0.0071)	ND (0.008)	ND (0.0083)	ND (0.01)	ND (0.013)
Acetone	0.05	NA	100	NA	0.05	NA	ND (0.0099)	ND (0.0084)	ND (0.0084)	ND (0.0097)	0.013 J	ND (0.0091)	ND (0.0084)	ND (0.0071)	ND (0.008)	0.0042 J	0.0076 J	0.0063 J
Acrylonitrile	NA	NA	NA	NA	NA	NA	ND (0.004)	ND (0.0034)	ND (0.0034)	ND (0.0039)	ND (0.0041)	ND (0.0036)	ND (0.0034)	ND (0.0028)	ND (0.0032)	ND (0.0033)	ND (0.0042)	ND (0.0051)
Benzene	0.06	NA	4.8	NA	0.06	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	0.00041 J	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
Bromobenzene	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
Bromodichloromethane	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
Bromoform	NA	NA	NA	NA	NA	NA	ND (0.004)	ND (0.0034)	ND (0.0034)	ND (0.0039)	ND (0.0041)	ND (0.0036)	ND (0.0034)	ND (0.0028)	ND (0.0032)	ND (0.0033)	ND (0.0042)	ND (0.0051)
Bromomethane (Methyl Bromide)	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
Carbon disulfide	NA	NA	NA	NA	NA	NA	ND (0.0099)	ND (0.0084)	ND (0.0084)	ND (0.0097)	ND (0.01)	ND (0.0091)	ND (0.0084)	ND (0.0071)	ND (0.008)	ND (0.0083)	ND (0.01)	ND (0.013)
Carbon tetrachloride	0.76	NA	2.4	NA	0.76	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
Chlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)

Table 2a
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name / Sample Name / Sample Date / Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-13	SB-13	SB-13	SB-14	SB-14	SB-14	SB-14	SB-14	SB-14	SB-15	SB-16	SB-17
Sample Name							SB-13 (0-0.5)	SB-13 (6-8)	SB-13 (12-14)	SB-14 (0-0.5)	DUP-01-02132023	SB-14 (6-8)	DUP-02-02132023	SB-14 (12-14)	DUP-03-02132023	SB-15 (2-4)	SB-16 (2-4)	SB-17 (3-5)
Sample Date							02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/27/2023	02/27/2023	02/27/2023
Lab Sample ID							L2307700-03 L2310887-02	L2307700-04	L2307700-05	L2307700-14 L2310887-04	L2307700-17	L2307700-15	L2307700-18	L2307700-16	L2307700-19	L2310326-01	L2310326-02	L2310326-03
Chlorobromomethane	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017) J	ND (0.0021) J	ND (0.0026) J
Chloroethane	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
Chloroform (Trichloromethane)	0.37	NA	49	NA	0.37	NA	ND (0.0015)	ND (0.0013)	ND (0.0013)	ND (0.0014)	ND (0.0015)	ND (0.0014)	ND (0.0013)	ND (0.0011)	0.00014 J	ND (0.0012)	ND (0.0016)	ND (0.0019)
Chloromethane (Methyl Chloride)	NA	NA	NA	NA	NA	NA	ND (0.004)	ND (0.0034)	ND (0.0034)	ND (0.0039)	ND (0.0041)	ND (0.0036)	ND (0.0034)	ND (0.0028)	ND (0.0032)	ND (0.0033)	ND (0.0042)	ND (0.0051)
cis-1,2-Dichloroethene	0.25	NA	100	NA	0.25	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
cis-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
Cymene (p-Isopropyltoluene)	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
Dibromochloromethane	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
Dibromomethane	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
Dichlorodifluoromethane (CFC-12)	NA	NA	NA	NA	NA	NA	ND (0.0099)	ND (0.0084)	ND (0.0084)	ND (0.0097)	ND (0.01)	ND (0.0091)	ND (0.0084)	ND (0.0071)	ND (0.008)	ND (0.0083)	ND (0.01)	ND (0.013)
Ethyl Ether	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
Ethylbenzene	1	NA	41	NA	1	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	0.00031 J	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.004)	ND (0.0034)	ND (0.0034)	ND (0.0039)	ND (0.0041)	ND (0.0036)	ND (0.0034)	ND (0.0028)	ND (0.0032)	ND (0.0033)	ND (0.0042)	ND (0.0051)
Isopropylbenzene (Cumene)	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
m,p-Xylenes	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	0.00079 J	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
Methyl Tert Butyl Ether (MTBE)	0.93	NA	100	NA	0.93	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
Methylene chloride (Dichloromethane)	0.05	NA	100	NA	0.05	NA	ND (0.005)	ND (0.0042)	ND (0.0042)	ND (0.0048)	ND (0.0052)	ND (0.0046)	ND (0.0042)	ND (0.0036)	ND (0.004)	ND (0.0042)	ND (0.0052)	ND (0.0064)
Naphthalene	12	NA	100	NA	12	NA	ND (0.004)	ND (0.0034)	ND (0.0034)	ND (0.0039)	0.014	ND (0.0036)	ND (0.0034)	ND (0.0028)	ND (0.0032)	ND (0.0033)	ND (0.0042)	ND (0.0051)
n-Butylbenzene	12	NA	100	NA	12	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
n-Propylbenzene	3.9	NA	100	NA	3.9	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
o-Xylene	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	0.00046 J	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
Styrene	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
tert-Butylbenzene	5.9	NA	100	NA	5.9	NA	ND (0.002)	ND (0.0017)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.0018)	ND (0.0017)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.0021)	ND (0.0026)
Tetrachloroethene	1.3	NA	19	NA	1.3	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	0.00091	0.0031	ND (0.00046)	ND (0.00042)	ND (0.00036)	0.00039 J	0.0041	0.00076	ND (0.00064)
Toluene	0.7	NA	100	NA	0.7	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	0.00071 J	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
trans-1,2-Dichloroethene	0.19	NA	100	NA	0.19	NA	ND (0.0015)	ND (0.0013)	ND (0.0013)	ND (0.0014)	ND (0.0015)	ND (0.0014)	ND (0.0013)	ND (0.0011)	ND (0.0012)	ND (0.0012)	ND (0.0016)	ND (0.0019)
trans-1,3-Dichloropropene	NA	NA	NA	NA	NA	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
trans-1,4-Dichloro-2-butene	NA	NA	NA	NA	NA	NA	ND (0.005)	ND (0.0042)	ND (0.0042)	ND (0.0048)	ND (0.0052)	ND (0.0046)	ND (0.0042)	ND (0.0036)	ND (0.004)	ND (0.0042)	ND (0.0052)	ND (0.0064)
Trichloroethene	0.47	NA	21	NA	0.47	NA	ND (0.0005)	ND (0.00042)	ND (0.00042)	ND (0.00048)	ND (0.00052)	ND (0.00046)	ND (0.00042)	ND (0.00036)	ND (0.0004)	ND (0.00042)	ND (0.00052)	ND (0.00064)
Trichlorofluoromethane (CFC-11)	NA	NA	NA	NA	NA	NA	ND (0.004)	ND (0.0034)	ND (0.0034)	ND (0.0039)	ND (0.0041)	ND (0.0036)	ND (0.0034)	ND (0.0028)	ND (0.0032)	ND (0.0033)	ND (0.0042)	ND (0.0051)
Vinyl acetate	NA	NA	NA	NA	NA	NA	ND (0.0099)	ND (0.0084)	ND (0.0084)	ND (0.0097)	ND (0.01)	ND (0.0091)	ND (0.0084)	ND (0.0071)	ND (0.008)	ND (0.0083)	ND (0.01)	ND (0.013)
Vinyl chloride	0.02	NA	0.9	NA	0.02	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	ND (0.001)	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
Xylene (Total)	1.6	NA	100	NA	0.26	NA	ND (0.00099)	ND (0.00084)	ND (0.00084)	ND (0.00097)	0.0013 J	ND (0.00091)	ND (0.00084)	ND (0.00071)	ND (0.0008)	ND (0.00083)	ND (0.001)	ND (0.0013)
SUM of CVOCs	NA	NA	NA	NA	NA	NA	ND	ND	ND	0.00091	0.0031	ND	ND	ND	ND	0.0041	0.00076	ND

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level																	
Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-01 SB-01 (0-0.5) 02/14/2023 L2307869-04	SB-01 SB-01 (6-8) 02/14/2023 L2307869-05	SB-01 SB-01 (12-14) 02/14/2023 L2307869-06	SB-02 SB-02 (0-0.5) 02/15/2023 L2308181-04 L2310887-08	SB-02 SB-02 (6-8) 02/15/2023 L2308181-05	SB-02 SB-02 (12-14) 02/15/2023 L2308181-06	SB-03 SB-03 (0-0.5) 02/15/2023 L2308181-01 L2310887-06	SB-03 SB-03 (6-8) 02/15/2023 L2308181-02 L2310887-07	SB-03 SB-03 (12-14) 02/15/2023 L2308181-03	SB-04 SB-04 (0-0.5) 02/13/2023 L2307700-06 L2310887-03	SB-04 SB-04 (6-8) 02/13/2023 L2307700-07	SB-04 SB-04 (12-14) 02/13/2023 L2307700-08
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.027) J	ND (0.027) J	ND (0.027) J	ND (0.026)	ND (0.027)	ND (0.029)	ND (0.026)	ND (0.027)	ND (0.027)	ND (0.028)	ND (0.027)	ND (0.027)
2,2'-oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.23)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	ND (0.86)	ND (0.86)	ND (0.86)	ND (0.85)	ND (0.86)	ND (0.92)	ND (0.83)	ND (0.86)	ND (0.86)	ND (0.88)	ND (0.86)	ND (0.86)
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Chlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	ND (0.22)	ND (0.22)	ND (0.21)	0.24	0.039 J	ND (0.23)	0.034 J	0.19 J	0.048 J	ND (0.22)	ND (0.22)	ND (0.22)
2-Methylphenol (o-Cresol)	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.39)	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.39)	ND (0.41)	ND (0.38)	ND (0.39)	ND (0.39)	ND (0.4)	ND (0.39)	ND (0.39)
3&4-Methylphenol	NA	NA	NA	NA	NA	NA	ND (0.26)	ND (0.26)	ND (0.26)	0.031 J	0.05 J	ND (0.27)	ND (0.25)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
3-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.47)	ND (0.47)	ND (0.46)	ND (0.46)	ND (0.47)	ND (0.5)	ND (0.45)	ND (0.47)	ND (0.47)	ND (0.48)	ND (0.47)	ND (0.47)
4-Bromophenyl phenyl ether (BDE-3)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chloroaniline	NA	NA	NA	NA	NA	NA	ND (0.18) J	ND (0.18) J	ND (0.18) J	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.27)	ND (0.24)	ND (0.25)	ND (0.25)	ND (0.26)	ND (0.25)	ND (0.25)

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level																	
Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-01	SB-01	SB-01	SB-02	SB-02	SB-02	SB-03	SB-03	SB-03	SB-04	SB-04	SB-04
Sample Name							SB-01 (0-0.5)	SB-01 (6-8)	SB-01 (12-14)	SB-02 (0-0.5)	SB-02 (6-8)	SB-02 (12-14)	SB-03 (0-0.5)	SB-03 (6-8)	SB-03 (12-14)	SB-04 (0-0.5)	SB-04 (6-8)	SB-04 (12-14)
Sample Date							02/14/2023	02/14/2023	02/14/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023
Lab Sample ID							L2307869-04	L2307869-05	L2307869-06	L2308181-04 L2310887-08	L2308181-05	L2308181-06	L2308181-01 L2310887-06	L2308181-02 L2310887-07	L2308181-03	L2307700-06 L2310887-03	L2307700-07	L2307700-08
Acenaphthene	98	NA	100	NA	20	NA	ND (0.14)	ND (0.14)	ND (0.14)	1.2	0.035 J	0.02 J	0.087 J	0.32	ND (0.14)	0.034 J	ND (0.14)	ND (0.14)
Acenaphthylene	107	NA	100	NA	100	NA	ND (0.14)	ND (0.14)	ND (0.14)	0.38	0.48	ND (0.15)	0.046 J	ND (0.14)	ND (0.14)	0.038 J	ND (0.14)	ND (0.14)
Acetophenone	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Anthracene	1000	NA	100	NA	100	NA	ND (0.11)	ND (0.11)	ND (0.11)	2.3	0.66	0.043 J	0.23	0.65	ND (0.11)	0.16	ND (0.11)	ND (0.11)
Benzo(a)anthracene	1	NA	1	NA	1	NA	0.049 J	ND (0.11)	ND (0.11)	***5.9***	***4***	0.11	1	0.97	ND (0.11)	0.75	ND (0.11)	ND (0.11)
Benzo(a)pyrene	22	NA	1	NA	1	NA	ND (0.14)	ND (0.14)	ND (0.14)	6.6	5.2	0.11 J	1.2	0.98	ND (0.14)	0.77	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	1.7	NA	1	NA	1	NA	0.05 J	ND (0.11)	ND (0.11)	***5.4***	***5.9***	0.14	1.3	1.1	ND (0.11)	0.9	ND (0.11)	ND (0.11)
Benzo(g,h,i)perylene	1000	NA	100	NA	100	NA	0.026 J	ND (0.14)	ND (0.14)	3.5	2.8	0.059 J	0.68	0.6	ND (0.14)	0.46	ND (0.14)	ND (0.14)
Benzo(k)fluoranthene	1.7	NA	3.9	NA	0.8	NA	ND (0.11)	ND (0.11)	ND (0.11)	***2.5***	***2.2***	0.053 J	0.46	0.36	ND (0.11)	0.29	ND (0.11)	ND (0.11)
Benzoic acid	NA	NA	NA	NA	NA	NA	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.57)	ND (0.58)	ND (0.62)	ND (0.56)	ND (0.58)	ND (0.58)	ND (0.6)	ND (0.58)	ND (0.58)
Benzyl Alcohol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	0.29	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Biphenyl	NA	NA	NA	NA	NA	NA	ND (0.41)	ND (0.41)	ND (0.41)	0.073 J	ND (0.41)	ND (0.44)	ND (0.4)	0.056 J	ND (0.41)	ND (0.42)	ND (0.41)	ND (0.41)
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.21)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.19)
bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	0.34	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Butyl benzylphthalate (BBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	0.047 J	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Carbazole	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	1.4	0.35	0.025 J	0.09 J	0.27	ND (0.18)	0.073 J	ND (0.18)	ND (0.18)
Chrysene	1	NA	3.9	NA	1	NA	0.044 J	ND (0.11)	ND (0.11)	***5.6***	***3.8***	0.1 J	1	0.93	ND (0.11)	0.78	ND (0.11)	ND (0.11)
Dibenz(a,h)anthracene	1000	NA	0.33	NA	0.33	NA	ND (0.11)	ND (0.11)	ND (0.11)	0.93	0.81	ND (0.11)	0.15	0.13	ND (0.11)	0.1 J	ND (0.11)	ND (0.11)
Dibenzofuran	210	NA	59	NA	7	NA	ND (0.18)	ND (0.18)	ND (0.18)	0.62	0.072 J	ND (0.19)	0.035 J	0.26	ND (0.18)	0.024 J	ND (0.18)	ND (0.18)
Diethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	0.15 J	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Di-n-butylphthalate (DBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Di-n-octyl phthalate (DnOP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Fluoranthene	1000	NA	100	NA	100	NA	0.074 J	ND (0.11)	ND (0.11)	9.6	7.1	0.23	2.3	2.6	0.026 J	1.5	ND (0.11)	ND (0.11)
Fluorene	386	NA	100	NA	30	NA	ND (0.18)	ND (0.18)	ND (0.18)	0.89	0.058 J	ND (0.19)	0.041 J	0.23	ND (0.18)	0.022 J	ND (0.18)	ND (0.18)
Hexachlorobenzene	3.2	NA	1.2	NA	0.33	NA	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.5)	ND (0.51)	ND (0.54)	ND (0.5)	ND (0.51)	ND (0.51)	ND (0.53)	ND (0.51)	ND (0.52)
Hexachloroethane	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)
Indeno(1,2,3-cd)pyrene	8.2	NA	0.5	NA	0.5	NA	0.027 J	ND (0.14)	ND (0.14)	4.4	3.5	0.087 J	0.75	0.66	ND (0.14)	0.5	ND (0.14)	ND (0.14)
Isophorone	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	0.7	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Naphthalene	12	NA	100	NA	12	NA	ND (0.18)	ND (0.18)	ND (0.18)	0.64	0.17 J	0.16 J	0.044 J	0.3	0.045 J	0.04 J	ND (0.18)	ND (0.18)
Nitrobenzene	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)
Pentachlorophenol	0.8	NA	6.7	NA	0.8	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)
Phenanthrene	1000	NA	100	NA	100	NA	0.039 J	ND (0.11)	ND (0.11)	6.9	2.1	0.16	1.2	3	0.03 J	0.84	ND (0.11)	ND (0.11)
Phenol	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Pyrene	1000	NA	100	NA	100	NA	0.062 J	ND (0.11)	ND (0.11)	7.7	5.8	0.18	2.3	2.3	0.025 J	1.5	ND (0.11)	ND (0.11)

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level																	
Location Name / Sample Name / Sample Date / Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-04-02 SB-04-02 (0-0.5) 02/17/2023 L2308771-01	SB-04-03 SB-04-03 (6-8) 02/17/2023 L2308771-02	SB-05 SB-05 (0-0.5) 02/13/2023 L2307700-09	SB-05 SB-05 (6-8) 02/13/2023 L2307700-22	SB-05 SB-05 (12-14) 02/13/2023 L2307700-23	SB-06 SB-06 (0-0.5) 02/15/2023 L2308181-10	SB-06 SB-06 (6-8) 02/15/2023 L2308181-11	SB-06 SB-06 (12-14) 02/15/2023 L2308181-12	SB-07 SB-07 (0-0.5) 02/13/2023 L2307700-27	SB-07 SB-07 (6-8) 02/13/2023 L2307700-28	SB-07 SB-07 (12-14) 02/13/2023 L2307700-29	SB-08 SB-08 (0-0.5) 02/14/2023 L2307869-01
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.027)	ND (0.029)	ND (0.027)	ND (0.026)	ND (0.028)	ND (0.027)	ND (0.028)	ND (0.027)	ND (0.026)	ND (0.026)	ND (0.027)	ND (0.026) J
2,2'-oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	ND (0.22)	ND (0.23)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.11)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	ND (0.86)	ND (0.93) J	ND (0.85)	ND (0.85)	ND (0.88)	ND (0.85)	ND (0.89)	ND (0.87)	ND (0.85)	ND (0.83)	ND (0.86)	ND (0.84)
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
2-Chlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	ND (0.22)	0.036 J	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)
2-Methylphenol (o-Cresol)	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
2-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
2-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.39)	ND (0.42)	ND (0.38)	ND (0.38)	ND (0.4)	ND (0.38)	ND (0.4)	ND (0.39)	ND (0.38)	ND (0.37)	ND (0.39)	ND (0.38)
3&4-Methylphenol	NA	NA	NA	NA	NA	NA	ND (0.26)	ND (0.28)	ND (0.26)	ND (0.25)	ND (0.26)	ND (0.26)	ND (0.27)	ND (0.26)	ND (0.25)	ND (0.25)	ND (0.26)	ND (0.25)
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
3-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.47)	ND (0.5)	ND (0.46)	ND (0.46)	ND (0.48)	ND (0.46)	ND (0.48)	ND (0.47)	ND (0.46)	ND (0.45)	ND (0.47)	ND (0.45)
4-Bromophenyl phenyl ether (BDE-3)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
4-Chloroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18) J	ND (0.18) J	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17) J
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
4-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
4-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.25)	ND (0.27)	ND (0.25)	ND (0.25)	ND (0.26)	ND (0.25)	ND (0.26)	ND (0.25)	ND (0.25)	ND (0.24)	ND (0.25)	ND (0.24)

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level																	
Location Name / Sample Name / Sample Date / Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-04-02 SB-04-02 (0-0.5) 02/17/2023 L2308771-01	SB-04-03 SB-04-03 (6-8) 02/17/2023 L2308771-02	SB-05 SB-05 (0-0.5) 02/13/2023 L2307700-09	SB-05 SB-05 (6-8) 02/13/2023 L2307700-22	SB-05 SB-05 (12-14) 02/13/2023 L2307700-23	SB-06 SB-06 (0-0.5) 02/15/2023 L2308181-10	SB-06 SB-06 (6-8) 02/15/2023 L2308181-11	SB-06 SB-06 (12-14) 02/15/2023 L2308181-12	SB-07 SB-07 (0-0.5) 02/13/2023 L2307700-27	SB-07 SB-07 (6-8) 02/13/2023 L2307700-28	SB-07 SB-07 (12-14) 02/13/2023 L2307700-29	SB-08 SB-08 (0-0.5) 02/14/2023 L2307869-01
Acenaphthene	98	NA	100	NA	20	NA	ND (0.14)	0.16	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Acenaphthylene	107	NA	100	NA	100	NA	ND (0.14)	0.089 J	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Acetophenone	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Anthracene	1000	NA	100	NA	100	NA	ND (0.11)	0.38	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)
Benzo(a)anthracene	1	NA	1	NA	1	NA	ND (0.11)	***1.1 J***	0.15	0.022 J	ND (0.11)	0.053 J	ND (0.11)	0.023 J	0.1	ND (0.1)	ND (0.11)	0.031 J
Benzo(a)pyrene	22	NA	1	NA	1	NA	ND (0.14)	1.3 J	0.17	ND (0.14)	ND (0.15)	0.063 J	ND (0.15)	ND (0.14)	0.11 J	ND (0.14)	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	1.7	NA	1	NA	1	NA	ND (0.11)	1.5 J	0.19	ND (0.11)	ND (0.11)	0.069 J	ND (0.11)	ND (0.11)	0.12	ND (0.1)	ND (0.11)	0.03 J
Benzo(g,h,i)perylene	1000	NA	100	NA	100	NA	ND (0.14)	0.79 J	0.1 J	ND (0.14)	ND (0.15)	0.042 J	ND (0.15)	ND (0.14)	0.069 J	ND (0.14)	ND (0.14)	0.021 J
Benzo(k)fluoranthene	1.7	NA	3.9	NA	0.8	NA	ND (0.11)	0.56 J	0.057 J	ND (0.11)	ND (0.11)	0.029 J	ND (0.11)	ND (0.11)	0.036 J	ND (0.1)	ND (0.11)	ND (0.1)
Benzoic acid	NA	NA	NA	NA	NA	NA	ND (0.58) J	ND (0.63) J	ND (0.58)	ND (0.57)	ND (0.59)	ND (0.58)	ND (0.6)	ND (0.59)	ND (0.57)	ND (0.56)	ND (0.58)	ND (0.56)
Benzyl Alcohol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Biphenyl	NA	NA	NA	NA	NA	NA	ND (0.41)	ND (0.44)	ND (0.4)	ND (0.4)	ND (0.42)	ND (0.4)	ND (0.42)	ND (0.41)	ND (0.4)	ND (0.39)	ND (0.41)	ND (0.4)
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	ND (0.19)	ND (0.21)	ND (0.19)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.2)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)
bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Butyl benzylphthalate (BBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Carbazole	NA	NA	NA	NA	NA	NA	ND (0.18)	0.094 J	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Chrysene	1	NA	3.9	NA	1	NA	ND (0.11)	***1.1 J***	0.15	0.018 J	ND (0.11)	0.059 J	ND (0.11)	0.026 J	0.1	ND (0.1)	ND (0.11)	0.03 J
Dibenz(a,h)anthracene	1000	NA	0.33	NA	0.33	NA	ND (0.11)	0.16	0.022 J	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)
Dibenzofuran	210	NA	59	NA	7	NA	ND (0.18)	0.064 J	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Diethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Di-n-butylphthalate (DBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Di-n-octyl phthalate (DnOP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Fluoranthene	1000	NA	100	NA	100	NA	ND (0.11)	2.6	0.27	0.036 J	ND (0.11)	0.089 J	ND (0.11)	0.036 J	0.2	ND (0.1)	ND (0.11)	0.058 J
Fluorene	386	NA	100	NA	30	NA	ND (0.18)	0.12 J	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Hexachlorobenzene	3.2	NA	1.2	NA	0.33	NA	ND (0.11)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	ND (0.51) J	ND (0.55) J	ND (0.51)	ND (0.51) J	ND (0.52) J	ND (0.51)	ND (0.53)	ND (0.52)	ND (0.5)	ND (0.49)	ND (0.51)	ND (0.5)
Hexachloroethane	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.16)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Indeno(1,2,3-cd)pyrene	8.2	NA	0.5	NA	0.5	NA	ND (0.14)	0.9 J	0.11 J	ND (0.14)	ND (0.15)	0.049 J	ND (0.15)	ND (0.14)	0.076 J	ND (0.14)	ND (0.14)	ND (0.14)
Isophorone	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Naphthalene	12	NA	100	NA	12	NA	ND (0.18)	0.053 J	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Nitrobenzene	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.16)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Pentachlorophenol	0.8	NA	6.7	NA	0.8	NA	ND (0.14)	ND (0.16)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Phenanthrene	1000	NA	100	NA	100	NA	ND (0.11)	1.7 J	0.14	0.023 J	ND (0.11)	0.06 J	ND (0.11)	ND (0.11)	0.11	ND (0.1)	ND (0.11)	0.036 J
Phenol	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)
Pyrene	1000	NA	100	NA	100	NA	ND (0.11)	2.4 J	0.26	0.034 J	ND (0.11)	0.093 J	ND (0.11)	0.033 J	0.2	ND (0.1)	ND (0.11)	0.052 J

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level																	
Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-08 SB-08 (6-8) 02/14/2023 L2307869-02	SB-08 SB-08 (12-14) 02/14/2023 L2307869-03	SB-09 SB-09 (0-0.5) 02/15/2023 L2308181-13	SB-09 SB-09 (6-8) 02/15/2023 L2308181-14	SB-09 SB-09 (12-14) 02/15/2023 L2308181-15	SB-10 SB-10 (0-0.5) 02/13/2023 L2307700-11	SB-10 SB-10 (6-8) 02/13/2023 L2307700-12	SB-10 SB-10 (12-14) 02/13/2023 L2307700-13	SB-11 SB-11 (0-0.5) 02/15/2023 L2308181-07 L2310887-09	SB-11 SB-11 (6-8) 02/15/2023 L2308181-08 L2310887-10	SB-11 SB-11 (12-14) 02/15/2023 L2308181-09	SB-12 SB-12 (0-0.5) 02/13/2023 L2307700-20 L2310887-05
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.027) J	ND (0.027) J	ND (0.026)	ND (0.026)	ND (0.029)	ND (0.027)	ND (0.026)	ND (0.026)	ND (0.028)	ND (0.026)	ND (0.027)	ND (0.027)
2,2'-oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.23)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.11)
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	ND (0.86)	ND (0.87)	ND (0.85)	ND (0.84)	ND (0.92)	ND (0.86)	ND (0.85)	ND (0.84)	ND (0.89)	ND (0.84)	ND (0.86)	ND (0.87)
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Chlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.23)	0.14 J	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)
2-Methylphenol (o-Cresol)	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
2-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.38)	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.41)	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.4)	ND (0.38)	ND (0.39)	ND (0.39)
3&4-Methylphenol	NA	NA	NA	NA	NA	NA	ND (0.26)	ND (0.26)	ND (0.25)	ND (0.25)	ND (0.28)	ND (0.26)	ND (0.25)	ND (0.25)	ND (0.27)	ND (0.25)	ND (0.26)	ND (0.26)
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
3-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.46)	ND (0.47)	ND (0.46)	ND (0.46)	ND (0.5)	ND (0.46)	ND (0.46)	ND (0.45)	ND (0.48)	ND (0.46)	ND (0.46)	ND (0.47)
4-Bromophenyl phenyl ether (BDE-3)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chloroaniline	NA	NA	NA	NA	NA	NA	ND (0.18) J	ND (0.18) J	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
4-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.25)	ND (0.26)	ND (0.25)	ND (0.24)	ND (0.27)	ND (0.25)	ND (0.25)	ND (0.24)	ND (0.26)	ND (0.25)	ND (0.25)	ND (0.25)

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level																	
Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-08	SB-08	SB-09	SB-09	SB-09	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11	SB-12
Sample Name							SB-08 (6-8)	SB-08 (12-14)	SB-09 (0-0.5)	SB-09 (6-8)	SB-09 (12-14)	SB-10 (0-0.5)	SB-10 (6-8)	SB-10 (12-14)	SB-11 (0-0.5)	SB-11 (6-8)	SB-11 (12-14)	SB-12 (0-0.5)
Sample Date							02/14/2023	02/14/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023
Lab Sample ID							L2307869-02	L2307869-03	L2308181-13	L2308181-14	L2308181-15	L2307700-11	L2307700-12	L2307700-13	L2308181-07 L2310887-09	L2308181-08 L2310887-10	L2308181-09	L2307700-20 L2310887-05
Acenaphthene	98	NA	100	NA	20	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	0.3	ND (0.14)	ND (0.14)	0.02 J	ND (0.14)	ND (0.14)	ND (0.14)
Acenaphthylene	107	NA	100	NA	100	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	0.045 J	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)
Acetophenone	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Anthracene	1000	NA	100	NA	100	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	0.83	ND (0.1)	ND (0.1)	0.066 J	ND (0.1)	ND (0.11)	ND (0.11)
Benzo(a)anthracene	1	NA	1	NA	1	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	***2.7***	ND (0.1)	ND (0.1)	0.39	0.11	0.02 J	0.18
Benzo(a)pyrene	22	NA	1	NA	1	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	2.2	ND (0.14)	ND (0.14)	0.43	0.11 J	ND (0.14)	0.21
Benzo(b)fluoranthene	1.7	NA	1	NA	1	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	***2.3***	ND (0.1)	ND (0.1)	0.46	0.13	ND (0.11)	0.24
Benzo(g,h,i)perylene	1000	NA	100	NA	100	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	1.2	ND (0.14)	ND (0.14)	0.24	0.07 J	ND (0.14)	0.14
Benzo(k)fluoranthene	1.7	NA	3.9	NA	0.8	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	0.63	ND (0.1)	ND (0.1)	0.17	0.054 J	ND (0.11)	0.075 J
Benzoic acid	NA	NA	NA	NA	NA	NA	ND (0.58)	ND (0.59)	ND (0.57) J	ND (0.57)	ND (0.62)	ND (0.58)	ND (0.57)	ND (0.57)	ND (0.6)	ND (0.57)	ND (0.58)	ND (0.58)
Benzyl Alcohol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Biphenyl	NA	NA	NA	NA	NA	NA	ND (0.41)	ND (0.42)	ND (0.4)	ND (0.4)	ND (0.44)	0.032 J	ND (0.4)	ND (0.4)	ND (0.42)	ND (0.4)	ND (0.41)	ND (0.41)
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.19)	ND (0.21)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.19)	ND (0.2)
bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Butyl benzylphthalate (BBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Carbazole	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	0.13 J	ND (0.18)	ND (0.17)	0.03 J	ND (0.18)	ND (0.18)	ND (0.18)
Chrysene	1	NA	3.9	NA	1	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	***3.1***	ND (0.1)	ND (0.1)	0.37	0.1	ND (0.11)	0.18
Dibenz(a,h)anthracene	1000	NA	0.33	NA	0.33	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	0.3	ND (0.1)	ND (0.1)	0.055 J	ND (0.1)	ND (0.11)	0.027 J
Dibenzofuran	210	NA	59	NA	7	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	0.15 J	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Diethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Di-n-butylphthalate (DBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Di-n-octyl phthalate (DnOP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Fluoranthene	1000	NA	100	NA	100	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	4.2	ND (0.1)	ND (0.1)	0.73	0.22	0.026 J	0.33
Fluorene	386	NA	100	NA	30	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	0.15 J	ND (0.18)	ND (0.17)	0.018 J	ND (0.18)	ND (0.18)	ND (0.18)
Hexachlorobenzene	3.2	NA	1.2	NA	0.33	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.11)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	ND (0.51)	ND (0.52)	ND (0.5)	ND (0.5)	ND (0.55)	ND (0.51)	ND (0.5)	ND (0.5)	ND (0.53)	ND (0.5)	ND (0.51)	ND (0.52)
Hexachloroethane	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)
Indeno(1,2,3-cd)pyrene	8.2	NA	0.5	NA	0.5	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	1.2	ND (0.14)	ND (0.14)	0.29	0.083 J	ND (0.14)	0.15
Isophorone	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)
Naphthalene	12	NA	100	NA	12	NA	ND (0.18)	ND (0.18)	ND (0.18)	0.16 J	ND (0.19)	0.24	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Nitrobenzene	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)
Pentachlorophenol	0.8	NA	6.7	NA	0.8	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.14)	ND (0.14)
Phenanthrene	1000	NA	100	NA	100	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	4.8	ND (0.1)	ND (0.1)	0.33	0.14	ND (0.11)	0.14
Phenol	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Pyrene	1000	NA	100	NA	100	NA	ND (0.11)	ND (0.11)	ND (0.1)	ND (0.1)	ND (0.12)	5.8	ND (0.1)	ND (0.1)	0.68	0.2	0.025 J	0.32

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level															
Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-12 SB-12 (6-8) 02/13/2023 L2307700-01 L2310887-01	SB-12 SB-12 (12-14) 02/13/2023 L2307700-02	SB-13 SB-13 (0-0.5) 02/13/2023 L2307700-03 L2310887-02	SB-13 SB-13 (6-8) 02/13/2023 L2307700-04	SB-13 SB-13 (12-14) 02/13/2023 L2307700-05	SB-14 SB-14 (0-0.5) 02/13/2023 L2307700-14 L2310887-04	SB-14 DUP-01-02132023 02/13/2023 L2307700-17	SB-14 SB-14 (6-8) 02/13/2023 L2307700-15	SB-14 DUP-02-02132023 02/13/2023 L2307700-18	SB-14 SB-14 (12-14) 02/13/2023 L2307700-16
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.026)	ND (0.027)	ND (0.028)	ND (0.027)	ND (0.028)	ND (0.027)	ND (0.14)	ND (0.028)	ND (0.027)	ND (0.026)
2,2'-oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	ND (0.21)	ND (0.21)	ND (0.23)	ND (0.21)	ND (0.22)	ND (0.22)	ND (1.1)	ND (0.22)	ND (0.22)	ND (0.21)
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.55)	ND (0.11)	ND (0.11)	ND (0.1)
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.82)	ND (0.17)	ND (0.16)	ND (0.16)
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	ND (0.85)	ND (0.86)	ND (0.91)	ND (0.86)	ND (0.89)	ND (0.86)	ND (4.4)	ND (0.89)	ND (0.87)	ND (0.84)
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
2-Chlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	0.024 J	ND (0.21)	0.11 J	ND (0.21)	ND (0.22)	ND (0.22) J	4.3 J	ND (0.22)	ND (0.22)	ND (0.21)
2-Methylphenol (o-Cresol)	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
2-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
2-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.38)	ND (0.38)	ND (0.41)	ND (0.38)	ND (0.4)	ND (0.39)	ND (2)	ND (0.4)	ND (0.39)	ND (0.38)
3&4-Methylphenol	NA	NA	NA	NA	NA	NA	ND (0.26)	ND (0.26)	ND (0.27)	ND (0.26)	ND (0.27)	ND (0.26)	0.48 J	ND (0.26)	ND (0.26)	ND (0.25)
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
3-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.46)	ND (0.46)	ND (0.5)	ND (0.46)	ND (0.48)	ND (0.47)	ND (2.4)	ND (0.48)	ND (0.47)	ND (0.46)
4-Bromophenyl phenyl ether (BDE-3)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chloroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18) J	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
4-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
4-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.25)	ND (0.25)	ND (0.27)	ND (0.25)	ND (0.26)	ND (0.25)	ND (1.3)	ND (0.26)	ND (0.25)	ND (0.25)

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level															
Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-12 SB-12 (6-8) 02/13/2023 L2307700-01 L2310887-01	SB-12 SB-12 (12-14) 02/13/2023 L2307700-02	SB-13 SB-13 (0-0.5) 02/13/2023 L2307700-03 L2310887-02	SB-13 SB-13 (6-8) 02/13/2023 L2307700-04	SB-13 SB-13 (12-14) 02/13/2023 L2307700-05	SB-14 SB-14 (0-0.5) 02/13/2023 L2307700-14 L2310887-04	SB-14 DUP-01-02132023 02/13/2023 L2307700-17	SB-14 SB-14 (6-8) 02/13/2023 L2307700-15	SB-14 DUP-02-02132023 02/13/2023 L2307700-18	SB-14 SB-14 (12-14) 02/13/2023 L2307700-16
Acenaphthene	98	NA	100	NA	20	NA	0.17	ND (0.14)	0.73	ND (0.14)	ND (0.15)	0.04 J	17 J	ND (0.15)	ND (0.14)	ND (0.14)
Acenaphthylene	107	NA	100	NA	100	NA	ND (0.14)	ND (0.14)	0.29	ND (0.14)	ND (0.15)	0.038 J	3.7 J	ND (0.15)	ND (0.14)	ND (0.14)
Acetophenone	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Anthracene	1000	NA	100	NA	100	NA	0.4	ND (0.11)	1.6	ND (0.11)	ND (0.11)	0.11	37	ND (0.11)	ND (0.11)	ND (0.1)
Benzo(a)anthracene	1	NA	1	NA	1	NA	0.98	ND (0.11)	***4.5***	0.054 J	ND (0.11)	0.4	***52***	0.14	ND (0.11)	ND (0.1)
Benzo(a)pyrene	22	NA	1	NA	1	NA	1	ND (0.14)	4.5	0.048 J	ND (0.15)	0.45	***56***	0.15	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	1.7	NA	1	NA	1	NA	1.1	ND (0.11)	***5.5***	0.063 J	ND (0.11)	0.48	***56***	0.16	ND (0.11)	ND (0.1)
Benzo(g,h,i)perylene	1000	NA	100	NA	100	NA	0.6	ND (0.14)	2.8	0.026 J	ND (0.15)	0.27	36	0.092 J	ND (0.14)	ND (0.14)
Benzo(k)fluoranthene	1.7	NA	3.9	NA	0.8	NA	0.33	ND (0.11)	***1.9***	ND (0.11)	ND (0.11)	0.18	***16***	0.052 J	ND (0.11)	ND (0.1)
Benzoic acid	NA	NA	NA	NA	NA	NA	ND (0.57)	ND (0.58)	ND (0.62)	ND (0.58)	ND (0.6)	ND (0.58)	ND (3)	ND (0.6)	ND (0.58)	ND (0.57)
Benzyl Alcohol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Biphenyl	NA	NA	NA	NA	NA	NA	ND (0.4)	ND (0.41)	0.037 J	ND (0.41)	ND (0.42)	ND (0.41)	2.2	ND (0.42)	ND (0.41)	ND (0.4)
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	ND (0.19)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.2)	ND (0.19)	ND (0.99)	ND (0.2)	ND (0.2)	ND (0.19)
bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.82)	ND (0.17)	ND (0.16)	ND (0.16)
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	0.26	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Butyl benzylphthalate (BBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Carbazole	NA	NA	NA	NA	NA	NA	0.14 J	ND (0.18)	0.83	ND (0.18)	ND (0.18)	0.047 J	7.8	ND (0.18)	ND (0.18)	ND (0.18)
Chrysene	1	NA	3.9	NA	1	NA	0.96	ND (0.11)	***4.4***	0.048 J	ND (0.11)	0.41	***47***	0.13	ND (0.11)	ND (0.1)
Dibenz(a,h)anthracene	1000	NA	0.33	NA	0.33	NA	0.11	ND (0.11)	0.65	ND (0.11)	ND (0.11)	0.053 J	6.2	ND (0.11)	ND (0.11)	ND (0.1)
Dibenzofuran	210	NA	59	NA	7	NA	0.079 J	ND (0.18)	0.32	ND (0.18)	ND (0.18)	0.021 J	10	ND (0.18)	ND (0.18)	ND (0.18)
Diethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Di-n-butylphthalate (DBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Di-n-octyl phthalate (DnOP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Fluoranthene	1000	NA	100	NA	100	NA	2.5	ND (0.11)	10	0.095 J	ND (0.11)	0.86	140	0.23 J	ND (0.11) J	ND (0.1)
Fluorene	386	NA	100	NA	30	NA	0.11 J	ND (0.18)	0.56	ND (0.18)	ND (0.18)	0.031 J	18	ND (0.18)	ND (0.18)	ND (0.18)
Hexachlorobenzene	3.2	NA	1.2	NA	0.33	NA	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.55)	ND (0.11)	ND (0.11)	ND (0.1)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	ND (0.51)	ND (0.51)	ND (0.54)	ND (0.51)	ND (0.53)	ND (0.52) J	ND (2.6)	ND (0.53)	ND (0.52)	ND (0.5)
Hexachloroethane	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.73)	ND (0.15)	ND (0.14)	ND (0.14)
Indeno(1,2,3-cd)pyrene	8.2	NA	0.5	NA	0.5	NA	0.64	ND (0.14)	3.4	0.032 J	ND (0.15)	0.3	***34***	0.097 J	ND (0.14)	ND (0.14)
Isophorone	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.82)	ND (0.17)	ND (0.16)	ND (0.16)
Naphthalene	12	NA	100	NA	12	NA	0.061 J	ND (0.18)	0.27	ND (0.18)	ND (0.18)	ND (0.18)	8	ND (0.18)	ND (0.18)	ND (0.18)
Nitrobenzene	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.82)	ND (0.17)	ND (0.16)	ND (0.16)
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.91)	ND (0.18)	ND (0.18)	ND (0.18)
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.73)	ND (0.15)	ND (0.14)	ND (0.14)
Pentachlorophenol	0.8	NA	6.7	NA	0.8	NA	ND (0.14)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.15)	ND (0.14)	ND (0.73)	ND (0.15)	ND (0.14)	ND (0.14)
Phenanthrene	1000	NA	100	NA	100	NA	1.9	ND (0.11)	6.4	0.044 J	ND (0.11)	0.53	150	0.091 J	ND (0.11)	ND (0.1)
Phenol	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	0.31 J	ND (0.18)	ND (0.18)	ND (0.18)
Pyrene	1000	NA	100	NA	100	NA	2.2	ND (0.11)	8.4	0.075 J	ND (0.11)	0.82	130	0.24 J	ND (0.11) J	ND (0.1)

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level									
Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-14 DUP-03-02132023 02/13/2023 L2307700-19	SB-15 SB-15 (2-4) 02/27/2023 L2310326-01	SB-16 SB-16 (2-4) 02/27/2023 L2310326-02	SB-17 SB-17 (3-5) 02/27/2023 L2310326-03
1,2,4,5-Tetrachlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
1,2-Dichlorobenzene	1.1	NA	100	NA	1.1	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
1,3-Dichlorobenzene	2.4	NA	49	NA	2.4	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
1,4-Dichlorobenzene	1.8	NA	13	NA	1.8	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
1,4-Dioxane	0.1	NA	13	NA	0.1	NA	ND (0.027)	ND (0.026)	ND (0.027)	ND (0.027)
2,2'-oxybis(1-Chloropropane)	NA	NA	NA	NA	NA	NA	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.22)
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.11)
2,4-Dichlorophenol	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
2,4-Dimethylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	ND (0.86)	ND (0.83)	ND (0.86)	ND (0.86)
2,4-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
2,6-Dinitrotoluene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
2-Chloronaphthalene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
2-Chlorophenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
2-Methylnaphthalene	NA	NA	NA	NA	NA	NA	ND (0.21)	ND (0.21)	ND (0.22)	0.065 J
2-Methylphenol (o-Cresol)	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
2-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
2-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.38)	ND (0.37)	ND (0.39)	ND (0.39)
3&4-Methylphenol	NA	NA	NA	NA	NA	NA	ND (0.26)	ND (0.25)	ND (0.26)	ND (0.26)
3,3'-Dichlorobenzidine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
3-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
4,6-Dinitro-2-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.46)	ND (0.45)	ND (0.47)	ND (0.47)
4-Bromophenyl phenyl ether (BDE-3)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
4-Chloro-3-methylphenol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
4-Chloroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17) J	ND (0.18) J	ND (0.18) J
4-Chlorophenyl phenyl ether	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
4-Nitroaniline	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
4-Nitrophenol	NA	NA	NA	NA	NA	NA	ND (0.25)	ND (0.24)	ND (0.25)	ND (0.25)

Table 2b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Precharacterization Grid	Action Level									
Location Name / Sample Name / Sample Date / Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-14 DUP-03-02132023 02/13/2023 L2307700-19	SB-15 SB-15 (2-4) 02/27/2023 L2310326-01	SB-16 SB-16 (2-4) 02/27/2023 L2310326-02	SB-17 SB-17 (3-5) 02/27/2023 L2310326-03
Acenaphthene	98	NA	100	NA	20	NA	ND (0.14)	ND (0.14)	ND (0.14)	0.19
Acenaphthylene	107	NA	100	NA	100	NA	ND (0.14)	ND (0.14)	ND (0.14)	0.077 J
Acetophenone	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Anthracene	1000	NA	100	NA	100	NA	ND (0.11)	ND (0.1)	ND (0.11)	0.58
Benzo(a)anthracene	1	NA	1	NA	1	NA	ND (0.11)	0.09 J	0.093 J	***2***
Benzo(a)pyrene	22	NA	1	NA	1	NA	ND (0.14)	0.1 J	0.093 J	2.1
Benzo(b)fluoranthene	1.7	NA	1	NA	1	NA	ND (0.11)	0.11	0.088 J	***2.2***
Benzo(g,h,i)perylene	1000	NA	100	NA	100	NA	ND (0.14)	0.068 J	0.074 J	1.4
Benzo(k)fluoranthene	1.7	NA	3.9	NA	0.8	NA	ND (0.11)	0.041 J	0.063 J	0.75
Benzoic acid	NA	NA	NA	NA	NA	NA	ND (0.58)	ND (0.56) J	ND (0.58) J	ND (0.58) J
Benzyl Alcohol	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Biphenyl	NA	NA	NA	NA	NA	NA	ND (0.41)	ND (0.39)	ND (0.41)	ND (0.41)
bis(2-Chloroethoxy)methane	NA	NA	NA	NA	NA	NA	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)
bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Butyl benzylphthalate (BBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Carbazole	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	0.17 J
Chrysene	1	NA	3.9	NA	1	NA	ND (0.11)	0.094 J	0.095 J	***1.8***
Dibenz(a,h)anthracene	1000	NA	0.33	NA	0.33	NA	ND (0.11)	ND (0.1)	ND (0.11)	0.26
Dibenzofuran	210	NA	59	NA	7	NA	ND (0.18)	ND (0.17)	ND (0.18)	0.092 J
Diethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Di-n-butylphthalate (DBP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Di-n-octyl phthalate (DnOP)	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Fluoranthene	1000	NA	100	NA	100	NA	ND (0.11)	0.15	0.16	3.9
Fluorene	386	NA	100	NA	30	NA	ND (0.18)	ND (0.17)	ND (0.18)	0.14 J
Hexachlorobenzene	3.2	NA	1.2	NA	0.33	NA	ND (0.11)	ND (0.1)	ND (0.11)	ND (0.11)
Hexachlorobutadiene	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	ND (0.51)	ND (0.49)	ND (0.51)	ND (0.52)
Hexachloroethane	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Indeno(1,2,3-cd)pyrene	8.2	NA	0.5	NA	0.5	NA	ND (0.14)	0.056 J	0.06 J	1.3
Isophorone	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Naphthalene	12	NA	100	NA	12	NA	ND (0.18)	ND (0.17)	0.029 J	0.11 J
Nitrobenzene	NA	NA	NA	NA	NA	NA	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
N-Nitrosodi-n-propylamine	NA	NA	NA	NA	NA	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Pentachlorophenol	0.8	NA	6.7	NA	0.8	NA	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Phenanthrene	1000	NA	100	NA	100	NA	ND (0.11)	0.076 J	0.065 J	2.8
Phenol	0.33	NA	100	NA	0.33	NA	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.18)
Pyrene	1000	NA	100	NA	100	NA	ND (0.11)	0.16	0.18	4

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2c
Remedial Investigation
Metals Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-01 SB-01 (0-0.5) 02/14/2023 L2307869-04	SB-01 SB-01 (6-8) 02/14/2023 L2307869-05	SB-01 SB-01 (12-14) 02/14/2023 L2307869-06	SB-02 SB-02 (0-0.5) 02/15/2023 L2308181-04 L2310887-08	SB-02 SB-02 (6-8) 02/15/2023 L2308181-05	SB-02 SB-02 (12-14) 02/15/2023 L2308181-06	SB-03 SB-03 (0-0.5) 02/15/2023 L2308181-01 L2310887-06	SB-03 SB-03 (6-8) 02/15/2023 L2308181-02 L2310887-07	SB-03 SB-03 (12-14) 02/15/2023 L2308181-03	SB-04 SB-04 (0-0.5) 02/13/2023 L2307700-06 L2310887-03	SB-04 SB-04 (6-8) 02/13/2023 L2307700-07	SB-04 SB-04 (12-14) 02/13/2023 L2307700-08	SB-04-02 SB-04-02 (0-0.5) 02/17/2023 L2308771-01	SB-04-03 SB-04-03 (6-8) 02/17/2023 L2308771-02
Inorganic Compounds (mg/kg)																				
Aluminum	NA	NA	NA	NA	NA	NA	19700	5430	5040	5560	5270	6750	4380	8760	5340	7210	6210	5150	7580	6710
Antimony	NA	NA	NA	NA	NA	NA	2.29 J	0.439 J	0.567 J	0.446 J	ND (4.09)	ND (4.34)	ND (4.07)	0.43 J	ND (4.12)	0.527 J	ND (4.14)	ND (4.12)	ND (4.35)	ND (4.52)
Arsenic	16	NA	16	NA	13	NA	0.649 J	1	0.556 J	5.49	1.87	0.462 J	2.22	3.81	0.665 J	15.1	1.48	0.588 J	1.75	***21.1***
Barium	820	NA	400	NA	350	NA	247	32	37.2	514	245	41.6	56.3	153	33.1	357	60.3	34.7	54.2	550
Beryllium	47	NA	72	NA	7.2	NA	0.101 J	ND (0.422)	ND (0.414)	0.34 J	0.422	0.526	0.358 J	0.634	0.419	0.36 J	0.122 J	0.109 J	0.199 J	0.299 J
Cadmium	7.5	NA	4.3	NA	2.5	NA	ND (0.873)	0.36 J	ND (0.829)	0.628 J	0.157 J	0.092 J	0.258 J	0.284 J	0.089 J	1.07	0.125 J	0.111 J	0.343 J	2.79
Calcium	NA	NA	NA	NA	NA	NA	5380	57600	48800	54400	67300	79700	26700	41200	71000	22400	67000	65800	56600	30800
Chromium	NA	NA	NA	NA	NA	NA	55.1	10.4	9.92	17.3	13.9	12.2	14	38.4	10	23.8	11.6	11.6	17.4	52.8
Cobalt	NA	NA	NA	NA	NA	NA	20.5	4.4	4.38	5.04	4.6	5.07	3.44	6.7	4.54	7.78	5.08	4.41	6.87	10
Copper	1720	NA	270	NA	50	NA	68.4	11.5	12.3	34.7	14.3	13.1	25.7	25.5	12.8	86	18.4	12.1	21.2	381
Iron	NA	NA	NA	NA	NA	NA	33100	9720	8540	13800	10100	10500	8160	14500	8810	16600	10100	9610	13500	87700
Lead	450	NA	400	NA	63	NA	2.86 J	3.37 J	3.62 J	155	42.1	ND (4.34)	173	269	5.24	***756***	16.1	3.78 J	29.1	***1980***
Magnesium	NA	NA	NA	NA	NA	NA	13600	31700	27000	6820	29900	40900	11300	16300	35300	6260	34100	32000	29800	9270
Manganese	2000	NA	2000	NA	1600	NA	216	220	219	187	202	285	454	260	211	330	224	226	443	533
Mercury	0.73	NA	0.81	NA	0.18	NA	0.249	ND (0.071)	ND (0.07)	0.467	0.462	ND (0.073)	0.116	0.225	ND (0.071)	***1.98***	0.082	ND (0.078)	0.059 J	***2.98 J***
Nickel	130	NA	310	NA	30	NA	53.3	9.21	9.42	9.16	8.87	11.6	7.82	16	9.19	18.4	10.1	9.15	13.5	29.2
Potassium	NA	NA	NA	NA	NA	NA	9860	1540	1440	1430	1620	1920	1140	3680	1560	2100	2050	1670	2790	1120
Selenium	4	NA	180	NA	3.9	NA	ND (1.75)	ND (1.69)	ND (1.66)	0.396 J	ND (1.64)	ND (1.74)	0.308 J	ND (1.64)	ND (1.65)	***4.24***	0.261 J	ND (1.65)	ND (1.74)	1.33 J
Silver	8.3	NA	180	NA	2	NA	ND (0.437)	ND (0.422)	ND (0.414)	ND (0.408)	ND (0.409)	ND (0.434)	ND (0.407)	ND (0.411)	ND (0.412)	0.499	ND (0.414)	ND (0.412)	ND (0.435)	0.587
Sodium	NA	NA	NA	NA	NA	NA	225	226	182	357	220	177	139 J	297	131 J	439	121 J	131 J	ND (174)	312
Thallium	NA	NA	NA	NA	NA	NA	1.58 J	ND (1.69)	ND (1.66)	ND (1.63)	0.316 J	0.279 J	ND (1.63)	0.266 J	ND (1.65)	0.561 J	0.394 J	0.464 J	0.851 J	1.07 J
Vanadium	NA	NA	NA	NA	NA	NA	111	18.5	17	20.4	19.1	19.5	13.2	26.8	16.9	29.2	19	17.9	26.7	18.4
Zinc	2480	NA	10000	NA	109	NA	86.3	415	30.4	773	199	37.8	82.4	138	31	656	59.6	34.2	66.2	930
TCLP Inorganic Compounds (mg/L)																				
Barium	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	NA	NA	NA	NA	NA	NA	-	-	-	0.0886 J	-	-	0.123 J	3.3	-	0.447 J	-	-	-	-

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
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bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2c
Remedial Investigation
Metals Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-05	SB-05	SB-05	SB-06	SB-06	SB-06	SB-07	SB-07	SB-07	SB-08	SB-08	SB-08	SB-09	SB-09
Sample Name							SB-05 (0-0.5)	SB-05 (6-8)	SB-05 (12-14)	SB-06 (0-0.5)	SB-06 (6-8)	SB-06 (12-14)	SB-07 (0-0.5)	SB-07 (6-8)	SB-07 (12-14)	SB-08 (0-0.5)	SB-08 (6-8)	SB-08 (12-14)	SB-09 (0-0.5)	SB-09 (6-8)
Sample Date							02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/14/2023	02/14/2023	02/14/2023	02/15/2023	02/15/2023
Lab Sample ID							L2307700-09	L2307700-22	L2307700-23	L2308181-10	L2308181-11	L2308181-12	L2307700-27	L2307700-28	L2307700-29	L2307869-01	L2307869-02	L2307869-03	L2308181-13	L2308181-14
Inorganic Compounds (mg/kg)																				
Aluminum	NA	NA	NA	NA	NA	NA	5780	7480	6500	6590	7340	7670	7950	6360	4090	6380	7600	5680	6140	6360
Antimony	NA	NA	NA	NA	NA	NA	ND (4.05)	ND (4.11)	ND (4.21)	ND (4.13)	ND (4.29)	ND (4.13)	ND (4.08)	ND (4.1)	ND (4.43)	0.536 J	1.02 J	0.638 J	ND (4.1)	ND (4.05)
Arsenic	16	NA	16	NA	13	NA	2.3	1.56	1.14	0.523 J	0.626 J	0.756 J	1.28	0.388 J	0.249 J	1.96 J	0.968	0.832 J	1.61	0.602 J
Barium	820	NA	400	NA	350	NA	103	42.7	43	42.5	43.8	49	51.7	41.1	27.7	46.3 J	43.9	39.8	36.2	51.5
Beryllium	47	NA	72	NA	7.2	NA	0.158 J	0.16 J	0.247 J	0.58	0.665	0.521	0.175 J	0.126 J	0.124 J	0.092 J	ND (0.432)	ND (0.429)	0.494	0.513
Cadmium	7.5	NA	4.3	NA	2.5	NA	0.242 J	ND (0.821)	ND (0.843)	0.102 J	ND (0.859)	0.089 J	0.199 J	0.12 J	0.11 J	ND (0.844)	ND (0.864)	ND (0.858)	0.095 J	0.084 J
Calcium	NA	NA	NA	NA	NA	NA	58600	64300	66300	90000	82200	87800	42200	76900	29900	60600	65800	63000	76700	69400
Chromium	NA	NA	NA	NA	NA	NA	14.4	12.4	12.2	10.4	12.6	27.6	25.2	11.7	8.42	9.46	13.4	11.3	9.97	11.6
Cobalt	NA	NA	NA	NA	NA	NA	4.99	5.48	4.97	5.31	5.34	5.33	7.34	6.76	3.74	4.24	4.88	4.52	8.34	5.25
Copper	1720	NA	270	NA	50	NA	27.8	15.3	15.2	13.2	13.3	18.1	20	12	15.6	62.1	13.4	14.5	12.4	17.6
Iron	NA	NA	NA	NA	NA	NA	10500	11500	10800	10500	10700	12700	14800	10400	7480	8530	11000	9790	10700	11500
Lead	450	NA	400	NA	63	NA	302	26.9	3.94 J	ND (4.13)	ND (4.29)	ND (4.13)	15.7	3.7 J	2.92 J	7.58 J	3.96 J	3.33 J	ND (4.45)	ND (4.05)
Magnesium	NA	NA	NA	NA	NA	NA	30700	40700	33700	50200	44800	47200	28400	37900	20400	25300	36900	35900	41500	36200
Manganese	2000	NA	2000	NA	1600	NA	268	248	301	317	224	264	228	246	226	188	243	225	254	242
Mercury	0.73	NA	0.81	NA	0.18	NA	0.19	0.163	ND (0.07)	ND (0.072)	ND (0.075)	ND (0.073)	0.092	ND (0.068)	ND (0.083)	0.068 J	ND (0.07)	ND (0.073)	ND (0.079)	ND (0.071)
Nickel	130	NA	310	NA	30	NA	9.81	11.1	10.5	9.94	10.2	11.7	19.8	13.9	9.35	10.7	10.2	10.7	9.5	10.9
Potassium	NA	NA	NA	NA	NA	NA	1860	1580	1970	2050	2330	2320	3240	2100	1200	2050	2130	1770	1820	2460
Selenium	4	NA	180	NA	3.9	NA	0.375 J	ND (1.64)	ND (1.68)	ND (1.65)	ND (1.72)	ND (1.65)	ND (1.63)	ND (1.64)	ND (1.77)	ND (1.69)	ND (1.73)	ND (1.72)	ND (1.64)	ND (1.62)
Silver	8.3	NA	180	NA	2	NA	ND (0.405)	ND (0.411)	ND (0.421)	ND (0.413)	ND (0.429)	ND (0.413)	ND (0.408)	ND (0.41)	ND (0.443)	ND (0.422)	ND (0.432)	ND (0.429)	ND (0.41)	ND (0.405)
Sodium	NA	NA	NA	NA	NA	NA	284	269	183	231	245	304	679	238	ND (177)	351 J	133 J	149 J	188	150 J
Thallium	NA	NA	NA	NA	NA	NA	0.489 J	0.426 J	0.348 J	ND (1.65)	0.288 J	ND (1.65)	0.604 J	0.485 J	0.491 J	ND (1.69)	0.472 J	0.316 J	ND (1.64)	0.436 J
Vanadium	NA	NA	NA	NA	NA	NA	19.7	19.4	20.4	18.5	18.7	24.4	29.3	18.6	11.8	15.7	23.3	19.2	19.5	21.4
Zinc	2480	NA	10000	NA	109	NA	142	55.2	50.1	49	46.2	51.5	66.3	52.4	39.1	41.7	50.1	31.6	52.6	42.7
TCLP Inorganic Compounds (mg/L)																				
Barium	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead	NA	NA	NA	NA	NA	NA	0.195 J	-	-	-	-	-	-	-	-	-	-	-	-	-

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Inorganic Compounds (mg/kg)																			
Aluminum	NA	NA	NA	NA	NA	NA	6330	7160	5430	5590	6980	4850	5630	8590	4800	5810	4420	6100	4320
Antimony	NA	NA	NA	NA	NA	NA	ND (4.4)	ND (4.1)	ND (4.08)	ND (4.22)	ND (4.3)	ND (40.8)	ND (4.14)	ND (4.16)	ND (4.08)	ND (4.08)	1.32 J	ND (4.07)	ND (4.23)
Arsenic	16	NA	16	NA	13	NA	1	2.22	0.723 J	0.752 J	3.01	2.1	0.868	5.86	1.96	0.864	5.1	1.48	0.81 J
Barium	820	NA	400	NA	350	NA	50.7	58.4	29	32.5	91.2	26.3	39.5	195	62.4	52.7	***1440***	61.9	43.3
Beryllium	47	NA	72	NA	7.2	NA	0.535	0.295 J	0.069 J	0.126 J	0.537	0.304 J	0.465	0.196 J	0.112 J	0.136 J	0.093 J	0.127 J	0.131 J
Cadmium	7.5	NA	4.3	NA	2.5	NA	0.118 J	0.25 J	0.099 J	0.107 J	0.24 J	0.19 J	0.103 J	0.575 J	0.272 J	0.139 J	1.34	0.209 J	0.124 J
Calcium	NA	NA	NA	NA	NA	NA	60900	21100	73700	68100	77100	67000	67900	29100	39500	66400	44500	76500	56400
Chromium	NA	NA	NA	NA	NA	NA	12	16.2	9.5	10.2	15.2	8.13	10.2	23.3	10.9	10.6	22.4	11.6	8.89
Cobalt	NA	NA	NA	NA	NA	NA	5.5	6.21	3.78	4.76	5.51	3.92	4.72	9.89	4.11	4.54	4.67	4.56	4.65
Copper	1720	NA	270	NA	50	NA	13.1	30.7	10.6	11.7	28.6	68.3	12.5	98.7	164	11.1	15.5	12.6	20.7
Iron	NA	NA	NA	NA	NA	NA	11400	13800	8360	9240	12600	9920	10600	19100	9880	9580	8260	9540	7960
Lead	450	NA	400	NA	63	NA	5.75	39.6	3.03 J	3.53 J	116	***1730***	ND (4.14)	442	154	3.67 J	***2610***	40.7	9.99
Magnesium	NA	NA	NA	NA	NA	NA	30700	17000	35300	33600	43400	36200	33400	16500	26300	33100	10900	29700	27700
Manganese	2000	NA	2000	NA	1600	NA	303	290	191	211	291	226	226	274	210	242	172	284	222
Mercury	0.73	NA	0.81	NA	0.18	NA	ND (0.075)	0.081	ND (0.075)	ND (0.071)	0.659	0.064 J	ND (0.069)	0.272	0.172	ND (0.084)	0.258	ND (0.069)	ND (0.084)
Nickel	130	NA	310	NA	30	NA	13.8	13	7.22	9.13	11.7	7.35	9.84	17.8	7.65	9.66	9.61	13.8	9.75
Potassium	NA	NA	NA	NA	NA	NA	2310	1660	1190	1620	2720	1220	1910	3240	1150	1950	1290	1760	1390
Selenium	4	NA	180	NA	3.9	NA	ND (1.76)	ND (1.64)	ND (1.63)	ND (1.69)	ND (1.72)	ND (1.63)	ND (1.66)	1.15 J	0.329 J	ND (1.63)	0.578 J	ND (1.63)	0.24 J
Silver	8.3	NA	180	NA	2	NA	ND (0.44)	ND (0.41)	ND (0.408)	ND (0.422)	ND (0.43)	ND (0.408)	ND (0.414)	ND (0.416)	ND (0.408)	ND (0.408)	ND (0.439)	ND (0.407)	ND (0.423)
Sodium	NA	NA	NA	NA	NA	NA	133 J	240	194	185	252	136 J	209	507	169	194	244	119 J	116 J
Thallium	NA	NA	NA	NA	NA	NA	0.336 J	0.527 J	0.315 J	0.541 J	ND (1.72)	ND (1.63)	ND (1.66)	0.674 J	0.417 J	0.464 J	ND (1.76)	0.546 J	ND (1.69)
Vanadium	NA	NA	NA	NA	NA	NA	21.8	22.4	16.3	16.9	24	13.2	19.4	37.6	15.3	17.5	19.7	20.3	15.6
Zinc	2480	NA	10000	NA	109	NA	43.9	85.4	42.9	38.4	156	45.7	40.8	257	232	94.8	1540	77.6	39.4
TCLP Inorganic Compounds (mg/L)																			
Barium	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-	-	0.549	-	-
Lead	NA	NA	NA	NA	NA	NA	-	-	-	-	0.203 J	2.19	-	0.0621 J	0.198 J	-	0.155 J	-	-

ABBREVIATIONS AND NOTES:
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Table 2c
Remedial Investigation
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Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name / Sample Name / Sample Date / Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-14 SB-14 (0-0.5) 02/13/2023 L2307700-14 L2310887-04	SB-14 DUP-01-02132023 02/13/2023 L2307700-17	SB-14 SB-14 (6-8) 02/13/2023 L2307700-15	SB-14 DUP-02-02132023 02/13/2023 L2307700-18	SB-14 SB-14 (12-14) 02/13/2023 L2307700-16	SB-14 DUP-03-02132023 02/13/2023 L2307700-19	SB-15 SB-15 (2-4) 02/27/2023 L2310326-01	SB-16 SB-16 (2-4) 02/27/2023 L2310326-02	SB-17 SB-17 (3-5) 02/27/2023 L2310326-03
Inorganic Compounds (mg/kg)															
Aluminum	NA	NA	NA	NA	NA	NA	9240	8610	7130	5430	5820	5790	7660	6150	8180
Antimony	NA	NA	NA	NA	NA	NA	ND (4.31)	ND (4.18)	ND (4.29)	ND (4.24)	ND (4.14)	ND (4.19)	ND (4.19)	ND (4.07)	4.26
Arsenic	16	NA	16	NA	13	NA	2.27	2.47	1.62	0.794 J	0.52 J	0.763 J	2.1	7.19	15.2
Barium	820	NA	400	NA	350	NA	133	59.8	52.4	37.2	40.2	43.3	75.9	177	420
Beryllium	47	NA	72	NA	7.2	NA	0.199 J	0.273 J	0.037 J	0.134 J	0.162 J	0.137 J	0.092 J	0.107 J	0.156 J
Cadmium	7.5	NA	4.3	NA	2.5	NA	0.247 J	0.2 J	0.132 J	0.113 J	0.098 J	0.112 J	ND (0.838)	0.392 J	1.03
Calcium	NA	NA	NA	NA	NA	NA	34400	26000	53000	63400	57200	62900	64200	50000	24500
Chromium	NA	NA	NA	NA	NA	NA	20.6	17.5	9.09	10.3	11.3	11.1	13.9	18.5	26.4
Cobalt	NA	NA	NA	NA	NA	NA	8.39	7.6	4.48	4.99	5.69	5.6	6.68	6.96	6.22
Copper	1720	NA	270	NA	50	NA	43.5	37.2	27.9 J	13 J	13.6	20.7	23.8	114	242
Iron	NA	NA	NA	NA	NA	NA	17300	15000	13100	9950	10100	10400	12800	28900	20700
Lead	450	NA	400	NA	63	NA	209	47.8	12 J	3.44 J	3.49 J	3.49 J	108	348	***725***
Magnesium	NA	NA	NA	NA	NA	NA	22100	18600	29400	31700	29100	32100	33700	27600	12300
Manganese	2000	NA	2000	NA	1600	NA	289	312	217	247	195	263	279	579	357
Mercury	0.73	NA	0.81	NA	0.18	NA	0.394	0.28	0.073 J	ND (0.072)	ND (0.073)	ND (0.07)	0.21	0.651	***1.2***
Nickel	130	NA	310	NA	30	NA	18.2	15.7	7.79 J	10.6 J	9.74 J	12.3 J	12.5	12	13.9
Potassium	NA	NA	NA	NA	NA	NA	3700	2600	2750	1860	2200	2170	2200	1880	2070
Selenium	4	NA	180	NA	3.9	NA	ND (1.72)	ND (1.67)	ND (1.72)	ND (1.69)	ND (1.66)	ND (1.68)	ND (1.68)	0.221 J	2.14
Silver	8.3	NA	180	NA	2	NA	ND (0.431)	ND (0.418)	ND (0.429)	ND (0.424)	ND (0.414)	ND (0.419)	ND (0.419)	0.301 J	0.714
Sodium	NA	NA	NA	NA	NA	NA	260	188	173	174	180	171	185	221	287
Thallium	NA	NA	NA	NA	NA	NA	0.928 J	0.716 J	0.37 J	0.685 J	0.499 J	0.531 J	0.685 J	0.924 J	0.956 J
Vanadium	NA	NA	NA	NA	NA	NA	31.9	27	20.8	18.1	18.1	18.3	20.1	19.5	24.1
Zinc	2480	NA	10000	NA	109	NA	120	81.5	54.8	43.4	42.8	43.7	101	359	905
TCLP Inorganic Compounds (mg/L)															
Barium	NA	NA	NA	NA	NA	NA	-	-	-	-	-	-	-	-	-
Lead	NA	NA	NA	NA	NA	NA	0.102 J	-	-	-	-	-	-	-	-

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2d
Remedial Investigation
Polychlorinated Biphenyls and Pesticides Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-01	SB-01	SB-01	SB-02	SB-02	SB-02	SB-03	SB-03	SB-03	SB-04	SB-04	SB-04	SB-04-02	SB-04-03
Sample Name							SB-01 (0-0.5)	SB-01 (6-8)	SB-01 (12-14)	SB-02 (0-0.5)	SB-02 (6-8)	SB-02 (12-14)	SB-03 (0-0.5)	SB-03 (6-8)	SB-03 (12-14)	SB-04 (0-0.5)	SB-04 (6-8)	SB-04 (12-14)	SB-04-02 (0-0.5)	SB-04-03 (6-8)
Sample Date							02/14/2023	02/14/2023	02/14/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/17/2023	02/17/2023
Lab Sample ID							L2307869-04	L2307869-05	L2307869-06	L2308181-04 L2310887-08	L2308181-05	L2308181-06	L2308181-01 L2310887-06	L2308181-02 L2310887-07	L2308181-03	L2307700-06 L2310887-03	L2307700-07	L2307700-08	L2308771-01	L2308771-02
PCBs (mg/kg)																				
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	ND (0.0349)	ND (0.036)	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	ND (0.0356)	ND (0.0349)	ND (0.0361)	ND (0.0388)
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	ND (0.0349)	ND (0.036)	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	ND (0.0356)	ND (0.0349)	ND (0.0361)	ND (0.0388)
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	ND (0.0349)	ND (0.036)	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	ND (0.0356)	ND (0.0349)	ND (0.0361)	ND (0.0388)
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	ND (0.0349)	ND (0.036)	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	ND (0.0356)	ND (0.0349)	ND (0.0361)	ND (0.0388)
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	ND (0.0349)	ND (0.036)	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	ND (0.0356)	ND (0.0349)	ND (0.0361)	ND (0.0388)
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	ND (0.0349)	ND (0.036)	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	0.0199 J	0.00418 J	ND (0.0361)	ND (0.0388)
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	0.0144 J	0.0235 J	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	0.0106 J	ND (0.0349)	ND (0.0361)	ND (0.0388)
Aroclor-1262 (PCB-1262)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	ND (0.0349)	ND (0.036)	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	ND (0.0356)	ND (0.0349)	ND (0.0361)	ND (0.0388)
Aroclor-1268 (PCB-1268)	NA	NA	NA	NA	NA	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	ND (0.0349)	ND (0.036)	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	ND (0.0356)	ND (0.0349)	ND (0.0361)	ND (0.0388)
Sum of PCBs	3.2	NA	1	NA	0.1	NA	ND (0.0353)	ND (0.0353)	ND (0.034)	0.0144 J	0.0235 J	ND (0.0374)	ND (0.0344)	ND (0.0351)	ND (0.0351)	ND (0.0369)	0.0305 J	0.00418 J	ND (0.0361)	ND (0.0388)
Other																				
Total Solids (%)	NA	NA	NA	NA	NA	NA	91.3	92.5	92.7	92.9	92.2	86.9	93.7	91.4	91.9	88.8	91	91.8	90.4	84.8
Pesticides (mg/kg)																				
4,4'-DDD	14	NA	13	NA	0.0033	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	0.0049 J+	0.00876 J+	ND (0.00176)	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
4,4'-DDE	17	NA	8.9	NA	0.0033	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	0.0188 J+	0.0653 J+	0.00116 J	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
4,4'-DDT	136	NA	7.9	NA	0.0033	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	0.1 J+	0.247 J+	0.00486	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
Aldrin	0.19	NA	0.097	NA	0.005	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	ND (0.00167)	ND (0.00168)	ND (0.00176)	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
alpha-BHC	0.02	NA	0.48	NA	0.02	NA	ND (0.000709)	ND (0.000697)	ND (0.000691)	ND (0.000696)	ND (0.000702)	ND (0.000732)	ND (0.000683)	ND (0.00071)	ND (0.000685)	ND (0.000718)	ND (0.000692)	ND (0.000694)	ND (0.000704)	ND (0.000771)
alpha-Chlordane (cis)	2.9	NA	4.2	NA	0.094	NA	ND (0.00213)	ND (0.00209)	ND (0.00207)	0.0149 J+	0.0141 J	ND (0.0022)	ND (0.00205)	ND (0.00213)	ND (0.00206)	ND (0.00215)	ND (0.00208)	ND (0.00208)	ND (0.00211)	ND (0.00231)
beta-BHC	0.09	NA	0.36	NA	0.036	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	ND (0.00167)	ND (0.00168)	ND (0.00176)	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
Chlordane	NA	NA	NA	NA	NA	NA	ND (0.0142)	ND (0.0139)	ND (0.0138)	0.0463 J	0.0553 J	ND (0.0146)	ND (0.0137)	ND (0.0142)	ND (0.0137)	ND (0.0144)	ND (0.0138)	ND (0.0139)	ND (0.0141)	ND (0.0154)
delta-BHC	0.25	NA	100	NA	0.04	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	ND (0.00167)	ND (0.00168)	ND (0.00176)	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
Dieldrin	0.1	NA	0.2	NA	0.005	NA	ND (0.00106)	ND (0.00104)	ND (0.00104)	0.00802 J+	0.00759 J+	ND (0.0011)	ND (0.00102)	ND (0.00106)	ND (0.00103)	ND (0.00108)	ND (0.00104)	ND (0.00104)	ND (0.00106)	ND (0.00116)
Endosulfan I	102	NA	24	NA	2.4	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	ND (0.00167)	ND (0.00168)	ND (0.00176)	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
Endosulfan II	102	NA	24	NA	2.4	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	ND (0.00167)	ND (0.00168)	ND (0.00176)	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
Endosulfan sulfate	1000	NA	24	NA	2.4	NA	ND (0.000709)	ND (0.000697)	ND (0.000691)	ND (0.000696)	ND (0.000702)	ND (0.000732)	ND (0.000683)	ND (0.00071)	ND (0.000685)	ND (0.000718)	ND (0.000692)	ND (0.000694)	ND (0.000704)	ND (0.000771)
Endrin	0.06	NA	11	NA	0.014	NA	ND (0.000709)	ND (0.000697)	ND (0.000691)	ND (0.000696)	ND (0.000702)	ND (0.000732)	ND (0.000683)	ND (0.00071)	ND (0.000685)	ND (0.000718)	ND (0.000692)	ND (0.000694)	ND (0.000704)	ND (0.000771)
Endrin aldehyde	NA	NA	NA	NA	NA	NA	ND (0.00213)	ND (0.00209)	ND (0.00207)	ND (0.00209)	ND (0.00211)	ND (0.0022)	ND (0.00205)	ND (0.00213)	ND (0.00206)	ND (0.00215)	ND (0.00208)	ND (0.00208)	ND (0.00211)	ND (0.00231)
Endrin ketone	NA	NA	NA	NA	NA	NA	ND (0.0017)	ND (0.00167)	ND (0.00166)	ND (0.00167)	ND (0.00168)	ND (0.00176)	ND (0.00164)	ND (0.0017)	ND (0.00164)	ND (0.00172)	ND (0.00166)	ND (0.00166)	ND (0.00169)	ND (0.00185)
gamma-BHC (Lindane)	0.1	NA	1.3	NA	0.1	NA	ND (0.000709)	ND (0.000697)	ND (0.000691)	ND (0.000696)	ND (0.000702)	ND (0.000732)	ND (0.000683)	ND (0.00071)	ND (0.000685)	ND (0.000718)	ND (0.000692)	ND (0.000694)	ND (0.000704)	ND (0.000771)
gamma-Chlordane (trans)	NA	NA	NA	NA	NA	NA	ND (0.00213)	ND (0.00209)	ND (0.00207)	0.0118 J+	0.0164 J+	ND (0.0022) J	ND (0.00205)	ND (0.00213)	ND (0.00206)	ND (0.00215)	ND (0.00208)	ND (0.00208)	ND (0.00211)	ND (0.00231)
Heptachlor	0.38	NA	2.1	NA	0.042	NA	ND (0.000851)	ND (0.000836)	ND (0.000829)	ND (0.000836)	ND (0.000842)	ND (0.000879)	ND (0.00082)	ND (0.000851)	ND (0.000822)	ND (0.000862)	ND (0.000831)	ND (0.000833)	ND (0.000844)	ND (0.000925)
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	ND (0.00319)	ND (0.00314)	ND (0.00311)	ND (0.00313) J	ND (0.00316) J	ND (0.0033)	ND (0.00307)	ND (0.00319)	ND (0.00308)	ND (0.00323)	ND (0.00312)	ND (0.00312)	ND (0.00317)	ND (0.00347)
Methoxychlor	NA	NA	NA	NA	NA	NA	ND (0.00319)	ND (0.00314)	ND (0.00311)	ND (0.00313)	ND (0.00316)	ND (0.0033)	ND (0.00307)	ND (0.00319)	ND (0.00308)	ND (0.00323)	ND (0.00312)	ND (0.00312)	ND (0.00317)	ND (0.00347)
Toxaphene	NA	NA	NA	NA	NA	NA	ND (0.0319)	ND (0.0314)	ND (0.0311)	ND (0.0313)	ND (0.0316)	ND (0.033)	ND (0.0307)	ND (0.0319)	ND (0.0308)	ND (0.0323)	ND (0.0312)	ND (0.0312)	ND (0.0317)	ND (0.0347)

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
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ft: feet
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- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2d
Remedial Investigation
Polychlorinated Biphenyls and Pesticides Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-05	SB-05	SB-05	SB-06	SB-06	SB-06	SB-07	SB-07	SB-07	SB-08	SB-08	SB-08	SB-09	SB-09	SB-09
Sample Name							SB-05 (0-0.5)	SB-05 (6-8)	SB-05 (12-14)	SB-06 (0-0.5)	SB-06 (6-8)	SB-06 (12-14)	SB-07 (0-0.5)	SB-07 (6-8)	SB-07 (12-14)	SB-08 (0-0.5)	SB-08 (6-8)	SB-08 (12-14)	SB-09 (0-0.5)	SB-09 (6-8)	SB-09 (12-14)
Sample Date							02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/14/2023	02/14/2023	02/14/2023	02/15/2023	02/15/2023	02/15/2023
Lab Sample ID							L2307700-09	L2307700-22	L2307700-23	L2308181-10	L2308181-11	L2308181-12	L2307700-27	L2307700-28	L2307700-29	L2307869-01	L2307869-02	L2307869-03	L2308181-13	L2308181-14	L2308181-15
PCBs (mg/kg)																					
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	ND (0.0338)	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	ND (0.0338)	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	ND (0.0338)	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	ND (0.0338)	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	ND (0.0338)	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	ND (0.0338)	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	0.0209 J	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Aroclor-1262 (PCB-1262)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	ND (0.0338)	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Aroclor-1268 (PCB-1268)	NA	NA	NA	NA	NA	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	ND (0.0338)	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Sum of PCBs	3.2	NA	1	NA	0.1	NA	ND (0.0345)	ND (0.0352)	ND (0.0369)	ND (0.0348)	ND (0.036)	ND (0.0364)	0.0209 J	ND (0.034)	ND (0.0356)	ND (0.0345)	ND (0.0344)	ND (0.0344)	ND (0.0344)	ND (0.0349)	ND (0.0376)
Other																					
Total Solids (%)	NA	NA	NA	NA	NA	NA	93.4	92.1	89.7	91.6	89.1	91.5	93.8	95	89.9	93.1	92.2	91.3	92.4	93.1	85.9
Pesticides (mg/kg)																					
4,4'-DDD	14	NA	13	NA	0.0033	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	ND (0.00174)	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
4,4'-DDE	17	NA	8.9	NA	0.0033	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	ND (0.00174)	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
4,4'-DDT	136	NA	7.9	NA	0.0033	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	0.00162 J	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
Aldrin	0.19	NA	0.097	NA	0.005	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	ND (0.00174)	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
alpha-BHC	0.02	NA	0.48	NA	0.02	NA	ND (0.00069)	ND (0.000692)	ND (0.000722)	ND (0.000706)	ND (0.000716)	ND (0.000727)	ND (0.000702)	ND (0.000684)	ND (0.000725)	ND (0.000694)	ND (0.000718)	ND (0.000711)	ND (0.00071)	ND (0.000707)	ND (0.000759)
alpha-Chlordane (cis)	2.9	NA	4.2	NA	0.094	NA	ND (0.00207)	ND (0.00208)	ND (0.00217)	ND (0.00212)	ND (0.00215)	ND (0.00218)	ND (0.00211)	ND (0.00205)	ND (0.00217)	ND (0.00208)	ND (0.00215)	ND (0.00213)	ND (0.00213)	ND (0.00212)	ND (0.00228)
beta-BHC	0.09	NA	0.36	NA	0.036	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	ND (0.00174)	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
Chlordane	NA	NA	NA	NA	NA	NA	ND (0.0138)	ND (0.0138)	ND (0.0144)	ND (0.0141)	ND (0.0143)	ND (0.0145)	ND (0.014)	ND (0.0137)	ND (0.0145)	ND (0.0139)	ND (0.0144)	ND (0.0142)	ND (0.0142)	ND (0.0141)	ND (0.0152)
delta-BHC	0.25	NA	100	NA	0.04	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	ND (0.00174)	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
Dieldrin	0.1	NA	0.2	NA	0.005	NA	ND (0.00104)	ND (0.00104)	ND (0.00108)	ND (0.00106)	ND (0.00107)	ND (0.00109)	ND (0.00105)	ND (0.00102)	ND (0.00109)	ND (0.00104)	ND (0.00108)	ND (0.00107)	ND (0.00106)	ND (0.00106)	ND (0.00114)
Endosulfan I	102	NA	24	NA	2.4	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	ND (0.00174)	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
Endosulfan II	102	NA	24	NA	2.4	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	ND (0.00174)	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
Endosulfan sulfate	1000	NA	24	NA	2.4	NA	ND (0.00069)	ND (0.000692)	ND (0.000722)	ND (0.000706)	ND (0.000716)	ND (0.000727)	ND (0.000702)	ND (0.000684)	ND (0.000725)	ND (0.000694)	ND (0.000718)	ND (0.000711)	ND (0.00071)	ND (0.000707)	ND (0.000759)
Endrin	0.06	NA	11	NA	0.014	NA	ND (0.00069)	ND (0.000692)	ND (0.000722)	ND (0.000706)	ND (0.000716)	ND (0.000727)	ND (0.000702)	ND (0.000684)	ND (0.000725)	ND (0.000694)	ND (0.000718)	ND (0.000711)	ND (0.00071)	ND (0.000707)	ND (0.000759)
Endrin aldehyde	NA	NA	NA	NA	NA	NA	ND (0.00207)	ND (0.00208)	ND (0.00217)	ND (0.00212)	ND (0.00215)	ND (0.00218)	ND (0.00211)	ND (0.00205)	ND (0.00217)	ND (0.00208)	ND (0.00215)	ND (0.00213)	ND (0.00213)	ND (0.00212)	ND (0.00228)
Endrin ketone	NA	NA	NA	NA	NA	NA	ND (0.00166)	ND (0.00166)	ND (0.00173)	ND (0.00169)	ND (0.00172)	ND (0.00174)	ND (0.00168)	ND (0.00164)	ND (0.00174)	ND (0.00167)	ND (0.00172)	ND (0.0017)	ND (0.0017)	ND (0.0017)	ND (0.00182)
gamma-BHC (Lindane)	0.1	NA	1.3	NA	0.1	NA	ND (0.00069)	ND (0.000692)	ND (0.000722)	ND (0.000706)	ND (0.000716)	ND (0.000727)	ND (0.000702)	ND (0.000684)	ND (0.000725)	ND (0.000694)	ND (0.000718)	ND (0.000711)	ND (0.00071)	ND (0.000707)	ND (0.000759)
gamma-Chlordane (trans)	NA	NA	NA	NA	NA	NA	ND (0.00207)	ND (0.00208)	ND (0.00217)	ND (0.00212)	ND (0.00215)	ND (0.00218)	ND (0.00211)	ND (0.00205)	ND (0.00217)	ND (0.00208)	ND (0.00215)	ND (0.00213)	ND (0.00213)	ND (0.00212)	ND (0.00228)
Heptachlor	0.38	NA	2.1	NA	0.042	NA	ND (0.000828)	ND (0.000831)	ND (0.000866)	ND (0.000847)	ND (0.000859)	ND (0.000872)	ND (0.000843)	ND (0.00082)	ND (0.00087)	ND (0.000833)	ND (0.000861)	ND (0.000853)	ND (0.000852)	ND (0.000848)	ND (0.000911)
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	ND (0.00311)	ND (0.00312)	ND (0.00325)	ND (0.00318)	ND (0.00322)	ND (0.00327)	ND (0.00316)	ND (0.00308)	ND (0.00326)	ND (0.00312)	ND (0.00323)	ND (0.0032)	ND (0.00319)	ND (0.00318)	ND (0.00342)
Methoxychlor	NA	NA	NA	NA	NA	NA	ND (0.00311)	ND (0.00312)	ND (0.00325)	ND (0.00318)	ND (0.00322)	ND (0.00327)	ND (0.00316)	ND (0.00308)	ND (0.00326)	ND (0.00312)	ND (0.00323)	ND (0.0032)	ND (0.00319)	ND (0.00318)	ND (0.00342)
Toxaphene	NA	NA	NA	NA	NA	NA	ND (0.0311)	ND (0.0312)	ND (0.0325)	ND (0.0318)	ND (0.0322)	ND (0.0327)	ND (0.0316)	ND (0.0308)	ND (0.0326)	ND (0.0312)	ND (0.0323)	ND (0.032)	ND (0.0319)	ND (0.0318)	ND (0.0342)

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2d
Remedial Investigation
Polychlorinated Biphenyls and Pesticides Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11	SB-12	SB-12	SB-12	SB-13	SB-13
Sample Name							SB-10 (0-0.5)	SB-10 (6-8)	SB-10 (12-14)	SB-11 (0-0.5)	SB-11 (6-8)	SB-11 (12-14)	SB-12 (0-0.5)	SB-12 (6-8)	SB-12 (12-14)	SB-13 (0-0.5)	SB-13 (6-8)
Sample Date							02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023
Lab Sample ID							L2307700-11	L2307700-12	L2307700-13	L2308181-07 L2310887-09	L2308181-08 L2310887-10	L2308181-09	L2307700-20 L2310887-05	L2307700-01 L2310887-01	L2307700-02	L2307700-03 L2310887-02	L2307700-04
PCBs (mg/kg)																	
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	ND (0.0377)	ND (0.0347)
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	ND (0.0377)	ND (0.0347)
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	ND (0.0377)	ND (0.0347)
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	ND (0.0377)	ND (0.0347)
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	ND (0.0377)	ND (0.0347)
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	ND (0.0377)	0.0166 J
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	0.0116 J	0.00992 J
Aroclor-1262 (PCB-1262)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	ND (0.0377)	ND (0.0347)
Aroclor-1268 (PCB-1268)	NA	NA	NA	NA	NA	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	0.00562 J	0.00371 J
Sum of PCBs	3.2	NA	1	NA	0.1	NA	ND (0.0356)	ND (0.0356)	ND (0.035)	ND (0.0364)	ND (0.0352)	ND (0.0355)	ND (0.0355)	ND (0.0347)	ND (0.0352)	0.0172 J	0.0302 J
Other																	
Total Solids (%)	NA	NA	NA	NA	NA	NA	92	92.6	92.9	88	92.6	91.2	92	92.6	92.2	86.6	92.5
Pesticides (mg/kg)																	
4,4'-DDD	14	NA	13	NA	0.0033	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	0.00497 J+	0.000907 J
4,4'-DDE	17	NA	8.9	NA	0.0033	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	0.045 J+	0.0126
4,4'-DDT	136	NA	7.9	NA	0.0033	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	0.217 J+	0.0331
Aldrin	0.19	NA	0.097	NA	0.005	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	ND (0.00179)	ND (0.00168)
alpha-BHC	0.02	NA	0.48	NA	0.02	NA	ND (0.0007)	ND (0.000686)	ND (0.000702)	ND (0.000756)	ND (0.000679)	ND (0.000691)	ND (0.000696)	ND (0.000704)	ND (0.000699)	ND (0.000745)	ND (0.000701)
alpha-Chlordane (cis)	2.9	NA	4.2	NA	0.094	NA	ND (0.0021)	ND (0.00206)	ND (0.0021)	ND (0.00227)	ND (0.00204)	ND (0.00207)	ND (0.00209)	ND (0.00211)	ND (0.0021)	0.0215 J+	0.00732 J
beta-BHC	0.09	NA	0.36	NA	0.036	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	ND (0.00179)	ND (0.00168)
Chlordane	NA	NA	NA	NA	NA	NA	ND (0.014)	ND (0.0137)	ND (0.014)	ND (0.0151)	ND (0.0136)	ND (0.0138)	ND (0.0139)	ND (0.0141)	ND (0.014)	0.0626 J	ND (0.014)
delta-BHC	0.25	NA	100	NA	0.04	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	ND (0.00179)	ND (0.00168)
Dieldrin	0.1	NA	0.2	NA	0.005	NA	ND (0.00105)	ND (0.00103)	ND (0.00105)	ND (0.00113)	ND (0.00102)	ND (0.00104)	ND (0.00104)	ND (0.00106)	ND (0.00105)	0.0242 J+	0.00368
Endosulfan I	102	NA	24	NA	2.4	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	ND (0.00179)	ND (0.00168)
Endosulfan II	102	NA	24	NA	2.4	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	ND (0.00179)	ND (0.00168)
Endosulfan sulfate	1000	NA	24	NA	2.4	NA	ND (0.0007)	ND (0.000686)	ND (0.000702)	ND (0.000756)	ND (0.000679)	ND (0.000691)	ND (0.000696)	ND (0.000704)	ND (0.000699)	ND (0.000745)	ND (0.000701)
Endrin	0.06	NA	11	NA	0.014	NA	ND (0.0007)	ND (0.000686)	ND (0.000702)	ND (0.000756)	ND (0.000679)	ND (0.000691)	ND (0.000696)	ND (0.000704)	ND (0.000699)	ND (0.000745)	ND (0.000701)
Endrin aldehyde	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.00206)	ND (0.0021)	ND (0.00227)	ND (0.00204)	ND (0.00207)	ND (0.00209)	ND (0.00211)	ND (0.0021)	ND (0.00223)	ND (0.0021)
Endrin ketone	NA	NA	NA	NA	NA	NA	ND (0.00168)	ND (0.00165)	ND (0.00168)	ND (0.00182)	ND (0.00163)	ND (0.00166)	ND (0.00167)	ND (0.00169)	ND (0.00168)	ND (0.00179)	ND (0.00168)
gamma-BHC (Lindane)	0.1	NA	1.3	NA	0.1	NA	ND (0.0007)	ND (0.000686)	ND (0.000702)	ND (0.000756)	ND (0.000679)	ND (0.000691)	ND (0.000696)	ND (0.000704)	ND (0.000699)	ND (0.000745)	ND (0.000701)
gamma-Chlordane (trans)	NA	NA	NA	NA	NA	NA	ND (0.0021)	ND (0.00206)	ND (0.0021)	ND (0.00227)	ND (0.00204)	ND (0.00207)	ND (0.00209)	ND (0.00211)	ND (0.0021)	0.0227 J+	0.00858
Heptachlor	0.38	NA	2.1	NA	0.042	NA	ND (0.00084)	ND (0.000824)	ND (0.000842)	ND (0.000908)	ND (0.000815)	ND (0.000829)	ND (0.000836)	ND (0.000844)	ND (0.000839)	0.00053 J	ND (0.000841) J
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	ND (0.00315)	ND (0.00309)	ND (0.00316)	ND (0.0034)	ND (0.00306)	ND (0.00311)	ND (0.00313)	ND (0.00316)	ND (0.00314)	0.0035 J+	ND (0.00315)
Methoxychlor	NA	NA	NA	NA	NA	NA	ND (0.00315)	ND (0.00309)	ND (0.00316)	ND (0.0034)	ND (0.00306)	ND (0.00311)	ND (0.00313)	ND (0.00316)	ND (0.00314)	0.0272 J+	ND (0.00315)
Toxaphene	NA	NA	NA	NA	NA	NA	ND (0.0315)	ND (0.0309)	ND (0.0316)	ND (0.034)	ND (0.0306)	ND (0.0311)	ND (0.0313)	ND (0.0316)	ND (0.0314)	ND (0.0335)	ND (0.0315)

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2d
Remedial Investigation
Polychlorinated Biphenyls and Pesticides Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-13	SB-14	SB-14	SB-14	SB-14	SB-14	SB-14	SB-15	SB-16	SB-17
Sample Name							SB-13 (12-14)	SB-14 (0-0.5)	DUP-01-02132023	SB-14 (6-8)	DUP-02-02132023	SB-14 (12-14)	DUP-03-02132023	SB-15 (2-4)	SB-16 (2-4)	SB-17 (3-5)
Sample Date							02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/27/2023	02/27/2023	02/27/2023
Lab Sample ID							L2307700-05	L2307700-14 L2310887-04	L2307700-17	L2307700-15	L2307700-18	L2307700-16	L2307700-19	L2310326-01	L2310326-02	L2310326-03
PCBs (mg/kg)																
Aroclor-1016 (PCB-1016)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Aroclor-1221 (PCB-1221)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Aroclor-1232 (PCB-1232)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Aroclor-1242 (PCB-1242)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Aroclor-1248 (PCB-1248)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Aroclor-1254 (PCB-1254)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Aroclor-1260 (PCB-1260)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Aroclor-1262 (PCB-1262)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Aroclor-1268 (PCB-1268)	NA	NA	NA	NA	NA	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Sum of PCBs	3.2	NA	1	NA	0.1	NA	ND (0.0358)	ND (0.0365)	ND (0.0365)	ND (0.0368)	ND (0.0357)	ND (0.036)	ND (0.0353)	-	-	-
Other																
Total Solids (%)	NA	NA	NA	NA	NA	NA	89.2	90	90	88.6	91	91.9	91.7	93.8	92.2	91.1
Pesticides (mg/kg)																
4,4'-DDD	14	NA	13	NA	0.0033	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
4,4'-DDE	17	NA	8.9	NA	0.0033	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
4,4'-DDT	136	NA	7.9	NA	0.0033	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
Aldrin	0.19	NA	0.097	NA	0.005	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
alpha-BHC	0.02	NA	0.48	NA	0.02	NA	ND (0.000733)	ND (0.000702)	ND (0.000709)	ND (0.000746)	ND (0.000714)	ND (0.000697)	ND (0.000696)	-	-	-
alpha-Chlordane (cis)	2.9	NA	4.2	NA	0.094	NA	ND (0.0022)	ND (0.00211)	ND (0.00212)	ND (0.00224)	ND (0.00214)	ND (0.00209)	ND (0.00209)	-	-	-
beta-BHC	0.09	NA	0.36	NA	0.036	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
Chlordane	NA	NA	NA	NA	NA	NA	ND (0.0147)	ND (0.014)	ND (0.0142)	ND (0.0149)	ND (0.0143)	ND (0.0139)	ND (0.0139)	-	-	-
delta-BHC	0.25	NA	100	NA	0.04	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
Dieldrin	0.1	NA	0.2	NA	0.005	NA	ND (0.0011)	ND (0.00105)	ND (0.00106)	ND (0.00112)	ND (0.00107)	ND (0.00104)	ND (0.00104)	-	-	-
Endosulfan I	102	NA	24	NA	2.4	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
Endosulfan II	102	NA	24	NA	2.4	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
Endosulfan sulfate	1000	NA	24	NA	2.4	NA	ND (0.000733)	ND (0.000702)	ND (0.000709)	ND (0.000746)	ND (0.000714)	ND (0.000697)	ND (0.000696)	-	-	-
Endrin	0.06	NA	11	NA	0.014	NA	ND (0.000733)	ND (0.000702)	ND (0.000709)	ND (0.000746)	ND (0.000714)	ND (0.000697)	ND (0.000696)	-	-	-
Endrin aldehyde	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.00211)	ND (0.00212)	ND (0.00224)	ND (0.00214)	ND (0.00209)	ND (0.00209)	-	-	-
Endrin ketone	NA	NA	NA	NA	NA	NA	ND (0.00176)	ND (0.00168)	ND (0.0017)	ND (0.00179)	ND (0.00171)	ND (0.00167)	ND (0.00167)	-	-	-
gamma-BHC (Lindane)	0.1	NA	1.3	NA	0.1	NA	ND (0.000733)	ND (0.000702)	ND (0.000709)	ND (0.000746)	ND (0.000714)	ND (0.000697)	ND (0.000696)	-	-	-
gamma-Chlordane (trans)	NA	NA	NA	NA	NA	NA	ND (0.0022)	ND (0.00211)	ND (0.00212)	ND (0.00224)	ND (0.00214)	ND (0.00209)	ND (0.00209)	-	-	-
Heptachlor	0.38	NA	2.1	NA	0.042	NA	ND (0.00088)	ND (0.000843)	ND (0.00085)	ND (0.000895)	ND (0.000856)	ND (0.000836)	ND (0.000836)	-	-	-
Heptachlor epoxide	NA	NA	NA	NA	NA	NA	ND (0.0033)	ND (0.00316)	ND (0.00319)	ND (0.00336)	ND (0.00321)	ND (0.00314)	ND (0.00313)	-	-	-
Methoxychlor	NA	NA	NA	NA	NA	NA	ND (0.0033)	ND (0.00316)	ND (0.00319)	ND (0.00336)	ND (0.00321)	ND (0.00314)	ND (0.00313)	-	-	-
Toxaphene	NA	NA	NA	NA	NA	NA	ND (0.033)	ND (0.0316)	ND (0.0319)	ND (0.0336)	ND (0.0321)	ND (0.0314)	ND (0.0313)	-	-	-

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- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2e
Remedial Investigation
Emerging Contaminants Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-01 SB-01 (0-0.5) 02/14/2023 L2307869-04	SB-01 SB-01 (6-8) 02/14/2023 L2307869-05	SB-01 SB-01 (12-14) 02/14/2023 L2307869-06	SB-02 SB-02 (0-0.5) 02/15/2023 L2308181-04 L2310887-08	SB-02 SB-02 (6-8) 02/15/2023 L2308181-05	SB-02 SB-02 (12-14) 02/15/2023 L2308181-06	SB-03 SB-03 (0-0.5) 02/15/2023 L2308181-01 L2310887-06	SB-03 SB-03 (6-8) 02/15/2023 L2308181-02 L2310887-07	SB-03 SB-03 (12-14) 02/15/2023 L2308181-03	SB-04 SB-04 (0-0.5) 02/13/2023 L2307700-06 L2310887-03	SB-04 SB-04 (6-8) 02/13/2023 L2307700-07	SB-04 SB-04 (12-14) 02/13/2023 L2307700-08	SB-04-02 SB-04-02 (0-0.5) 02/17/2023 L2308771-01	SB-04-03 SB-04-03 (6-8) 02/17/2023 L2308771-02
PFAS (ng/g)																				
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NA	NA	NA	NA	NA	NA	ND (0.798)	ND (0.799)	ND (0.792)	ND (0.791)	ND (0.789)	ND (0.787)	ND (0.795)	ND (0.783)	ND (0.794)	ND (0.792)	ND (0.789)	ND (0.788)	ND (0.797)	ND (0.782)
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NA	NA	NA	NA	NA	NA	ND (0.798)	ND (0.799)	ND (0.792)	ND (0.791)	ND (0.789)	ND (0.787)	ND (0.795)	ND (0.783)	ND (0.794)	ND (0.792)	ND (0.789)	ND (0.788)	ND (0.797)	ND (0.782)
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	0.38	ND (0.197)	ND (0.197)	0.143 J	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorobutanesulfonic acid (PFBS)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	0.517 J	0.055 J	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorobutanoic acid (PFBA)	NA	NA	NA	NA	NA	NA	ND (0.798)	ND (0.799)	ND (0.792)	ND (0.791)	ND (0.789)	ND (0.787)	ND (0.795)	ND (0.783)	ND (0.794)	ND (0.792)	ND (0.789)	ND (0.788)	ND (0.797)	ND (0.782)
Perfluorodecanesulfonic acid (PFDS)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorodecanoic acid (PFDA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	0.079 J	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorododecanoic acid (PFDoDA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	0.079 J	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluoroheptanesulfonic acid (PFHpS)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	0.07 J
Perfluoroheptanoic acid (PFHpA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorohexanesulfonic acid (PFHxS)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorohexanoic acid (PFHxA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	0.048 J	0.063 J	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorononanoic acid (PFNA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorooctane sulfonamide (PFOSA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorooctanesulfonic acid (PFOS)	NA	3.7	NA	44	NA	0.88	0.319 J+	ND (0.2)	ND (0.198)	0.332	0.221	0.291	0.095 J	0.156 J	ND (0.198)	ND (0.198)	0.205	ND (0.197)	0.789	2.53
Perfluorooctanoic acid (PFOA)	NA	1.1	NA	33	NA	0.66	0.295	ND (0.2)	ND (0.198)	0.119 J	0.102 J	0.134 J	0.183 J	ND (0.196)	ND (0.198)	ND (0.198)	0.134 J	ND (0.197)	ND (0.199)	0.313
Perfluoropentanoic acid (PFPeA)	NA	NA	NA	NA	NA	NA	ND (0.399)	ND (0.4)	ND (0.396)	ND (0.396)	ND (0.394)	ND (0.393)	ND (0.397)	ND (0.391)	ND (0.397)	ND (0.396)	ND (0.394)	ND (0.394)	ND (0.399)	ND (0.391)
Perfluorotetradecanoic acid (PFTeDA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluorotridecanoic acid (PFTrDA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
Perfluoroundecanoic acid (PFUnDA)	NA	NA	NA	NA	NA	NA	ND (0.2)	ND (0.2)	ND (0.198)	ND (0.198)	ND (0.197)	0.055 J	ND (0.199)	ND (0.196)	ND (0.198)	ND (0.198)	ND (0.197)	ND (0.197)	ND (0.199)	ND (0.196)
US EPA PFAS (PFOS + PFOA)	NA	NA	NA	NA	NA	NA	0.614 J+	ND (0.2)	ND (0.198)	0.451 J	0.323 J	0.425 J	0.278 J	0.156 J	ND (0.198)	ND (0.198)	0.339 J	ND (0.197)	0.789	2.84

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2e
Remedial Investigation
Emerging Contaminants Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-05	SB-05	SB-05	SB-06	SB-06	SB-06	SB-07	SB-07	SB-07	SB-08	SB-08	SB-08	SB-09	SB-09
Sample Name							SB-05 (0-0.5)	SB-05 (6-8)	SB-05 (12-14)	SB-06 (0-0.5)	SB-06 (6-8)	SB-06 (12-14)	SB-07 (0-0.5)	SB-07 (6-8)	SB-07 (12-14)	SB-08 (0-0.5)	SB-08 (6-8)	SB-08 (12-14)	SB-09 (0-0.5)	SB-09 (6-8)
Sample Date							02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/14/2023	02/14/2023	02/14/2023	02/15/2023	02/15/2023
Lab Sample ID							L2307700-09	L2307700-22	L2307700-23	L2308181-10	L2308181-11	L2308181-12	L2307700-27	L2307700-28	L2307700-29	L2307869-01	L2307869-02	L2307869-03	L2308181-13	L2308181-14
PFAS (ng/g)																				
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NA	NA	NA	NA	NA	NA	ND (0.789)	ND (0.788)	ND (0.789)	ND (0.738)	ND (0.778)	ND (0.755)	ND (0.793)	ND (0.793)	ND (0.796)	ND (0.79)	ND (0.79)	ND (0.795)	ND (0.768)	ND (0.736)
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NA	NA	NA	NA	NA	NA	ND (0.789)	ND (0.788)	ND (0.789)	ND (0.738)	ND (0.778)	ND (0.755)	ND (0.793)	ND (0.793)	ND (0.796)	ND (0.79)	ND (0.79)	ND (0.795)	ND (0.768)	ND (0.736)
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorobutanesulfonic acid (PFBS)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorobutanoic acid (PFBA)	NA	NA	NA	NA	NA	NA	ND (0.789)	ND (0.788)	ND (0.789)	ND (0.738)	ND (0.778)	ND (0.755)	ND (0.793)	ND (0.793)	ND (0.796)	ND (0.79)	ND (0.79)	ND (0.795)	ND (0.768)	ND (0.736)
Perfluorodecanesulfonic acid (PFDS)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorodecanoic acid (PFDA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorododecanoic acid (PFDoDA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluoroheptanesulfonic acid (PFHpS)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluoroheptanoic acid (PFHpA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorohexanesulfonic acid (PFHxS)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorohexanoic acid (PFHxA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorononanoic acid (PFNA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorooctane sulfonamide (PFOSA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorooctanesulfonic acid (PFOS)	NA	3.7	NA	44	NA	0.88	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorooctanoic acid (PFOA)	NA	1.1	NA	33	NA	0.66	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluoropentanoic acid (PFPeA)	NA	NA	NA	NA	NA	NA	ND (0.394)	ND (0.394)	ND (0.395)	ND (0.369)	ND (0.389)	ND (0.378)	ND (0.396)	ND (0.396)	ND (0.398)	ND (0.395)	ND (0.395)	ND (0.398)	ND (0.384)	ND (0.368)
Perfluorotetradecanoic acid (PFTeDA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluorotridecanoic acid (PFTrDA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
Perfluoroundecanoic acid (PFUnDA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)
US EPA PFAS (PFOS + PFOA)	NA	NA	NA	NA	NA	NA	ND (0.197)	ND (0.197)	ND (0.197)	ND (0.184)	ND (0.194)	ND (0.189)	ND (0.198)	ND (0.198)	ND (0.199)	ND (0.197)	ND (0.198)	ND (0.199)	ND (0.192)	ND (0.184)

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
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-: Not Analyzed
bgs: below ground surface
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NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2e
Remedial Investigation
Emerging Contaminants Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-09	SB-10	SB-10	SB-10	SB-11	SB-11	SB-11	SB-12	SB-12	SB-12	SB-13	SB-13	SB-13
Sample Name							SB-09 (12-14)	SB-10 (0-0.5)	SB-10 (6-8)	SB-10 (12-14)	SB-11 (0-0.5)	SB-11 (6-8)	SB-11 (12-14)	SB-12 (0-0.5)	SB-12 (6-8)	SB-12 (12-14)	SB-13 (0-0.5)	SB-13 (6-8)	SB-13 (12-14)
Sample Date							02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/15/2023	02/15/2023	02/15/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023	02/13/2023
Lab Sample ID							L2308181-15	L2307700-11	L2307700-12	L2307700-13	L2308181-07 L2310887-09	L2308181-08 L2310887-10	L2308181-09	L2307700-20 L2310887-05	L2307700-01 L2310887-01	L2307700-02	L2307700-03 L2310887-02	L2307700-04	L2307700-05
PFAS (ng/g)																			
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NA	NA	NA	NA	NA	NA	ND (0.779)	ND (0.799)	ND (0.785)	ND (0.793)	ND (0.761)	ND (0.767)	ND (0.796)	ND (0.795)	ND (0.797)	ND (0.797)	ND (0.791)	ND (0.786)	ND (0.791)
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NA	NA	NA	NA	NA	NA	ND (0.779)	ND (0.799)	ND (0.785)	ND (0.793)	ND (0.761)	ND (0.767)	ND (0.796)	ND (0.795)	ND (0.797)	ND (0.797)	ND (0.791)	ND (0.786)	ND (0.791)
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	0.087 J	ND (0.196)	ND (0.198)
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluorobutanesulfonic acid (PFBS)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	0.053 J	0.061 J	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluorobutanoic acid (PFBA)	NA	NA	NA	NA	NA	NA	ND (0.779)	ND (0.799)	ND (0.785)	ND (0.793)	ND (0.761)	ND (0.767)	ND (0.796)	ND (0.795)	ND (0.797)	ND (0.797)	ND (0.791)	ND (0.786)	ND (0.791)
Perfluorodecanesulfonic acid (PFDS)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	0.04 J	ND (0.196)	ND (0.198)
Perfluorodecanoic acid (PFDA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluorododecanoic acid (PFDoDA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	0.047 J	ND (0.196)	ND (0.198)
Perfluoroheptanesulfonic acid (PFHpS)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	0.221 J	ND (0.196)	ND (0.198)
Perfluoroheptanoic acid (PFHpA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluorohexanesulfonic acid (PFHxS)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluorohexanoic acid (PFHxA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluorononanoic acid (PFNA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluorooctane sulfonamide (PFOSA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	0.071 J	ND (0.196)	ND (0.198)
Perfluorooctanesulfonic acid (PFOS)	NA	3.7	NA	44	NA	0.88	ND (0.195)	0.104 J	0.181 J	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	1.16	ND (0.196)	0.166 J
Perfluorooctanoic acid (PFOA)	NA	1.1	NA	33	NA	0.66	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	0.08 J	ND (0.199)	0.174 J	ND (0.196)	ND (0.198)
Perfluoropentanoic acid (PFPeA)	NA	NA	NA	NA	NA	NA	ND (0.389)	ND (0.4)	ND (0.393)	ND (0.396)	ND (0.381)	ND (0.384)	ND (0.398)	ND (0.397)	ND (0.398)	ND (0.399)	ND (0.395)	ND (0.393)	ND (0.395)
Perfluorotetradecanoic acid (PFTeDA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluorotridecanoic acid (PFTrDA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
Perfluoroundecanoic acid (PFUnDA)	NA	NA	NA	NA	NA	NA	ND (0.195)	ND (0.2)	ND (0.196)	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.199)	ND (0.198)	ND (0.196)	ND (0.198)
US EPA PFAS (PFOS + PFOA)	NA	NA	NA	NA	NA	NA	ND (0.195)	0.104 J	0.181 J	ND (0.198)	ND (0.19)	ND (0.192)	ND (0.199)	ND (0.199)	0.08 J	ND (0.199)	1.33 J	ND (0.196)	0.166 J

ABBREVIATIONS AND NOTES:
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- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 2e
Remedial Investigation
Emerging Contaminants Analytical Results in Soil
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	Restricted Use Soil Cleanup Objectives - Protection of Groundwater	Restricted Use Soil Cleanup Objectives - Protection of Groundwater - PFAS/PFOA	Restricted Use Soil Cleanup Objectives - Residential	Restricted Use Soil Cleanup Objectives - Residential - PFAS/PFOA	Unrestricted Use Soil Cleanup Objectives	Unrestricted Use Soil Cleanup Objectives - PFAS/PFOA	SB-14 SB-14 (0-0.5) 02/13/2023 L2307700-14 L2310887-04	SB-14 DUP-01-02132023 02/13/2023 L2307700-17	SB-14 SB-14 (6-8) 02/13/2023 L2307700-15	SB-14 DUP-02-02132023 02/13/2023 L2307700-18	SB-14 SB-14 (12-14) 02/13/2023 L2307700-16	SB-14 DUP-03-02132023 02/13/2023 L2307700-19	SB-15 SB-15 (2-4) 02/27/2023 L2310326-01	SB-16 SB-16 (2-4) 02/27/2023 L2310326-02	SB-17 SB-17 (3-5) 02/27/2023 L2310326-03
PFAS (ng/g)															
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NA	NA	NA	NA	NA	NA	ND (0.795)	ND (0.799)	ND (0.78)	ND (0.795)	ND (0.779)	ND (0.778)	-	-	-
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NA	NA	NA	NA	NA	NA	ND (0.795)	ND (0.799)	ND (0.78)	ND (0.795)	ND (0.779)	ND (0.778)	-	-	-
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorobutanesulfonic acid (PFBS)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorobutanoic acid (PFBA)	NA	NA	NA	NA	NA	NA	ND (0.795)	ND (0.799)	ND (0.78)	ND (0.795)	ND (0.779)	ND (0.778)	-	-	-
Perfluorodecanesulfonic acid (PFDS)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorodecanoic acid (PFDA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorododecanoic acid (PFDoDA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluoroheptanesulfonic acid (PFHpS)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluoroheptanoic acid (PFHpA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorohexanesulfonic acid (PFHxS)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorohexanoic acid (PFHxA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorononanoic acid (PFNA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorooctane sulfonamide (PFOSA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorooctanesulfonic acid (PFOS)	NA	3.7	NA	44	NA	0.88	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorooctanoic acid (PFOA)	NA	1.1	NA	33	NA	0.66	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluoropentanoic acid (PFPeA)	NA	NA	NA	NA	NA	NA	ND (0.398)	ND (0.4)	ND (0.39)	ND (0.397)	ND (0.389)	ND (0.389)	-	-	-
Perfluorotetradecanoic acid (PFTeDA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluorotridecanoic acid (PFTrDA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
Perfluoroundecanoic acid (PFUnDA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-
US EPA PFAS (PFOS + PFOA)	NA	NA	NA	NA	NA	NA	ND (0.199)	ND (0.2)	ND (0.195)	ND (0.199)	ND (0.195)	ND (0.194)	-	-	-

ABBREVIATIONS AND NOTES:
mg/kg: milligram per kilogram
ng/g: nanogram per gram
-: Not Analyzed
bgs: below ground surface
CVOCs: Chlorinated volatile organic compounds
ft: feet
J: Value is estimated.
R: Rejected
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Soil analytical results are compared to the New York State Department of Environmental Conservation (NYSDEC) Title 6 of the Official Compilation of New York Codes, Rules, and Regulations (NYCRR) Part 375 Unrestricted Use Soil Cleanup Objectives (SCO), Restricted-Use Residential SCOs, and Protection of Groundwater SCO's.
*- **Bold italic** values indicate an exceedance of the Protection of Groundwater Criteria.*
- Grey shading indicates an exceedance of the Unrestricted Use Soil Cleanup Objectives.
- Yellow shading indicates an exceedance of the Restricted Use Residential Soil Cleanup Objectives.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

Table 3a
Remedial Investigation
Volatile Organic Compound Analytical Results in Groundwater
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	New York TOGS 111 Ambient Water Quality Standards	MW-01 MW-01-20230224 02/24/2023 L2309998-01	MW-02 MW-02-20230227 02/27/2023 L2310327-01	MW-03 MW-03-20230227 02/27/2023 L2310327-02	MW-06 MW-06-20230227 02/27/2023 L2310327-03	MW-08 MW-08-20230227 02/27/2023 L2310327-04	MW-11 MW-11-20230227 02/27/2023 L2310327-05	MW-11 DUP-01-02272023 02/27/2023 L2310327-06
Volatile Organic Compounds (ug/L)								
1,1,1,2-Tetrachloroethane	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,1,1-Trichloroethane	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,1,2,2-Tetrachloroethane	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1,2-Trichloroethane	1	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)	ND (1.5)
1,1-Dichloroethane	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,1-Dichloroethene	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,1-Dichloropropene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,2,3-Trichlorobenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,2,3-Trichloropropane	0.04	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,2,4,5-Tetramethylbenzene	5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
1,2,4-Trichlorobenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,2,4-Trimethylbenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,2-Dibromo-3-chloropropane (DBCP)	0.04	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,2-Dibromoethane (Ethylene Dibromide)	0.0006	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
1,2-Dichlorobenzene	3	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,2-Dichloroethane	0.6	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,2-Dichloroethene (total)	NA	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,2-Dichloropropane	1	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
1,3,5-Trimethylbenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,3-Dichlorobenzene	3	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,3-Dichloropropane	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,3-Dichloropropene	0.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
1,4-Dichlorobenzene	3	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
1,4-Diethylbenzene	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
1,4-Dioxane	0.35	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)	ND (250)
2,2-Dichloropropane	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
2-Butanone (Methyl Ethyl Ketone)	50	ND (5)	ND (5)	ND (5)	ND (5)	2.7 J	ND (5)	ND (5)
2-Chlorotoluene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
2-Hexanone (Methyl Butyl Ketone)	50	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2-Phenylbutane (sec-Butylbenzene)	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
4-Chlorotoluene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Acetone	50	2.7 J	10	2.4 J	ND (5)	18	2.6 J	7.2
Acrylonitrile	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Benzene	1	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromobenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Bromodichloromethane	50	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Bromoform	50	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Bromomethane (Methyl Bromide)	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	0.84 J	ND (2.5)
Carbon disulfide	60	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Carbon tetrachloride	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Chlorobenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Chlorobromomethane	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Chloroethane	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Chloroform (Trichloromethane)	7	1.5 J	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Chloromethane (Methyl Chloride)	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
cis-1,2-Dichloroethene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
cis-1,3-Dichloropropene	0.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Cymene (p-Isopropyltoluene)	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Dibromochloromethane	50	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Dibromomethane	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Dichlorodifluoromethane (CFC-12)	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Ethyl Ether	NA	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Ethylbenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Hexachlorobutadiene	0.5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Isopropylbenzene (Cumene)	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
m,p-Xylenes	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Methyl Tert Butyl Ether (MTBE)	10	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Methylene chloride (Dichloromethane)	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Naphthalene	10	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
n-Butylbenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
n-Propylbenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
o-Xylene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Styrene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
tert-Butylbenzene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Tetrachloroethene	5	ND (0.5)	0.66	ND (0.5)	1.1	8	0.76	0.65
Toluene	5	3	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
trans-1,2-Dichloroethene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
trans-1,3-Dichloropropene	0.4	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
trans-1,4-Dichloro-2-butene	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Trichloroethene	5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Trichlorofluoromethane (CFC-11)	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Vinyl acetate	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Vinyl chloride	2	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Xylene (Total)	5	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)

ABBREVIATIONS AND NOTES:
µg/L: micrograms per liter
ng/L: nanogram per liter

-: Not Analyzed
bgs: below ground surface
ft: feet
R: Rejected
J: Value is estimated.
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Water analytical results are compared to the New York TOGS 111 Ambient Water Quality Standards.
- Exceedances of AWQS criteria are shaded in gray.

Table 3b
Remedial Investigation
Semi-Volatile Organic Compound Analytical Results in Groundwater
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	New York TOGS 111 Ambient Water Quality Standards	MW-01 MW-01-20230224 02/24/2023 L2309998-01	MW-02 MW-02-20230227 02/27/2023 L2310327-01	MW-03 MW-03-20230227 02/27/2023 L2310327-02	MW-06 MW-06-20230227 02/27/2023 L2310327-03	MW-08 MW-08-20230227 02/27/2023 L2310327-04	MW-11 MW-11-20230227 02/27/2023 L2310327-05	MW-11 DUP-01-02272023 02/27/2023 L2310327-06
Semi-Volatile Organic Compounds (ug/L)								
1,2,4,5-Tetrachlorobenzene	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
1,2,4-Trichlorobenzene	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
1,2-Dichlorobenzene	3	ND (2)	ND (2)	ND (2)	ND (2) J	ND (2)	ND (2)	ND (2)
1,3-Dichlorobenzene	3	ND (2)	ND (2)	ND (2)	ND (2) J	ND (2)	ND (2)	ND (2)
1,4-Dichlorobenzene	3	ND (2)	ND (2)	ND (2)	ND (2) J	ND (2)	ND (2)	ND (2)
2,2'-oxybis(1-Chloropropane)	5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
2,4,5-Trichlorophenol	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2,4,6-Trichlorophenol	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2,4-Dichlorophenol	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2,4-Dimethylphenol	50	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)
2,4-Dinitrophenol	10	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
2,4-Dinitrotoluene	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2,6-Dinitrotoluene	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2-Chlorophenol	NA	ND (2)	ND (2)	ND (2)	ND (2) J	ND (2)	ND (2)	ND (2)
2-Methylphenol (o-Cresol)	NA	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)
2-Nitroaniline	5	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
2-Nitrophenol	NA	ND (10)	ND (10)	ND (10)	ND (10) J	ND (10)	ND (10)	ND (10)
3&4-Methylphenol	NA	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)
3,3'-Dichlorobenzidine	5	ND (5) J	ND (5)	5 R	ND (5)	ND (5)	ND (5)	ND (5)
3-Nitroaniline	5	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)	ND (5)
4,6-Dinitro-2-methylphenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Bromophenyl phenyl ether (BDE-3)	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
4-Chloro-3-methylphenol	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
4-Chloroaniline	5	ND (5)	ND (5) J	ND (5) J	ND (5) J	ND (5) J	ND (5) J	ND (5) J
4-Chlorophenyl phenyl ether	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
4-Nitroaniline	5	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)	ND (5)
4-Nitrophenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Acetophenone	NA	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)
Benzoic acid	NA	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)
Benzyl Alcohol	NA	ND (2)	ND (2)	ND (2)	ND (2) J	ND (2)	ND (2)	ND (2)
Biphenyl	5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
bis(2-Chloroethoxy)methane	5	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)
bis(2-Chloroethyl)ether	1	ND (2)	ND (2)	ND (2)	ND (2) J	ND (2)	ND (2)	ND (2)
bis(2-Ethylhexyl)phthalate	5	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)	ND (3)
Butyl benzylphthalate (BBP)	50	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Carbazole	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Dibenzofuran	NA	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Diethyl phthalate	50	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Dimethyl phthalate	50	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Di-n-butylphthalate (DBP)	50	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Di-n-octyl phthalate (DnOP)	50	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Hexachlorocyclopentadiene	5	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Isophorone	50	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)
Nitrobenzene	0.4	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
N-Nitrosodi-n-propylamine	NA	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)
N-Nitrosodiphenylamine	50	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Phenol	1	ND (5)	ND (5)	ND (5)	ND (5) J	ND (5)	ND (5)	ND (5)
Semi-Volatile Organic Compounds (SIM) (ug/L)								
1,4-Dioxane	0.35	ND (0.15)	ND (0.144)	ND (0.147)	ND (0.142)	ND (0.142)	0.0628 J	0.062 J
2-Chloronaphthalene	10	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	0.04 J
2-Methylnaphthalene	NA	ND (0.1)	0.03 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.05 J
Acenaphthene	20	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.04 J
Acenaphthylene	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.01 J	0.04 J
Anthracene	50	ND (0.1)	0.01 J	0.1 J	ND (0.1)	0.03 J	0.03 J	0.03 J
Benzo(a)anthracene	0.002	ND (0.1)	0.03 J	0.03 J	0.02 J	0.02 J	0.03 J	0.03 J
Benzo(a)pyrene	0	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.03 J	ND (0.1)
Benzo(b)fluoranthene	0.002	ND (0.1)	ND (0.1)	0.02 J	ND (0.1)	0.02 J	0.03 J	0.02 J
Benzo(g,h,i)perylene	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.11	0.03 J
Benzo(k)fluoranthene	0.002	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.02 J	0.01 J
Chrysene	0.002	ND (0.1)	ND (0.1)	0.01 J	ND (0.1)	ND (0.1)	0.02 J	0.02 J
Dibenz(a,h)anthracene	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.08 J	0.02 J
Fluoranthene	50	0.03 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.04 J	0.03 J
Fluorene	50	0.02 J	0.02 J	ND (0.1)	ND (0.1)	0.03 J	0.02 J	0.05 J
Hexachlorobenzene	0.04	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	0.01 J	0.03 J
Hexachlorobutadiene	0.5	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Hexachloroethane	5	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)
Indeno(1,2,3-cd)pyrene	0.002	0.01 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.1	0.03 J
Naphthalene	10	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Pentachlorophenol	1	ND (0.8)	ND (0.8)	0.19 J	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)
Phenanthrene	50	ND (0.1)	0.05 J	0.04 J	ND (0.1)	ND (0.1)	0.05 J	0.07 J
Pyrene	50	ND (0.1)	ND (0.1)	0.02 J	ND (0.1)	ND (0.1)	0.04 J	0.03 J

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ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Water analytical results are compared to the New York TOGS 111 Ambient Water Quality Standards.
- Exceedances of AWQS criteria are shaded in gray.

Table 3c
Remedial Investigation
Metals Analytical Results in Groundwater
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	New York TOGS 111 Ambient Water Quality Standards	MW-01 MW-01-20230224 02/24/2023 L2309998-01	MW-02 MW-02-20230227 02/27/2023 L2310327-01	MW-03 MW-03-20230227 02/27/2023 L2310327-02	MW-06 MW-06-20230227 02/27/2023 L2310327-03	MW-08 MW-08-20230227 02/27/2023 L2310327-04	MW-11 MW-11-20230227 02/27/2023 L2310327-05	MW-11 DUP-01-02272023 02/27/2023 L2310327-06
Inorganic Compounds (ug/L)								
Aluminum, Dissolved	NA	8.25 J	ND (10)	ND (10)	ND (10)	ND (10)	16.8 J+	ND (10)
Antimony, Dissolved	3	ND (4)	0.54 J	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)
Arsenic, Dissolved	25	0.32 J	0.23 J	1.41	ND (0.5)	ND (0.5)	1.23 J	0.53 J
Barium, Dissolved	1000	107.9	79.09	86.17	72.41	68.94	56.97	49.97
Beryllium, Dissolved	3	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Cadmium, Dissolved	5	0.11 J	ND (0.2)	0.06 J	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Calcium, Dissolved	NA	166000	98900	639000	108000	390000	126000	108000
Chromium, Dissolved	50	1.92	ND (1)	120.6	ND (1)	0.74 J	ND (1)	ND (1)
Cobalt, Dissolved	NA	0.53	ND (0.5)	2.19	0.45 J	2.03	0.37 J	0.28 J
Copper, Dissolved	200	1.33	0.62 J	2.76	0.45 J	1.11	0.9 J	1.63
Iron, Dissolved	300	32.9 J	ND (50)	ND (50)	ND (50)	ND (50)	ND (50)	22.3 J
Lead, Dissolved	25	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Magnesium, Dissolved	35000	74600	45400	180000	44200	186000	43100	35200
Manganese, Dissolved	300	77.54	12.92	88.34	90.46	645.5	144.9	139.2
Mercury, Dissolved	0.7	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Nickel, Dissolved	100	2.04	ND (2)	7.7	ND (2)	3.08	ND (2)	ND (2)
Potassium, Dissolved	NA	13600	18200	15800	7580	19400	14500	14900
Selenium, Dissolved	10	11.2	6.01	23.1	14.6	8.58	17.4	12.7
Silver, Dissolved	50	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)
Sodium, Dissolved	20000	69800	28000	179000	39600	75200	31200	31300
Thallium, Dissolved	0.5	ND (1)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Vanadium, Dissolved	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)	ND (5)
Zinc, Dissolved	2000	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Aluminum, Total	NA	1670	191	3090	61.5	1670	893 J	2490 J
Antimony, Total	3	ND (4)	ND (4)	0.47 J	ND (4)	ND (4)	ND (4)	ND (4)
Arsenic, Total	25	0.56	0.33 J	2.09	ND (0.5)	0.53	0.57	0.99
Barium, Total	1000	124	72.07	119.1	71.56	83.25	63.4	81.92
Beryllium, Total	3	0.11 J	ND (0.5)	0.33 J	ND (0.5)	ND (0.5)	ND (0.5)	0.16 J
Cadmium, Total	5	0.18 J	ND (0.2)	0.4	ND (0.2)	0.07 J	ND (0.2)	0.14 J
Calcium, Total	NA	170000	60600	694000	101000	376000	126000	126000
Chromium, Total	50	6.74	1.19	186.2	0.36 J	5.77	1.93 J	5.58 J
Cobalt, Total	NA	2.15	0.34 J	10.19	0.51	3.58	1.15 J	3.38 J
Copper, Total	200	5.87	1.75	28.11	1.01	7.02	3.49 J	11.36 J
Iron, Total	300	2520	349	5880	95.2	2450	1290 J	4000 J
Lead, Total	25	1.67	1.86	84.47	ND (1)	5.04	5.27 J	31.87 J
Magnesium, Total	35000	76800	44700	242000	40600	186000	43200	44800
Manganese, Total	300	140	26.89	602.5	92.62	677.5	196.9 J	296.8 J
Mercury, Total	0.7	ND (0.2)	ND (0.2)	0.15 J	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Nickel, Total	100	5.5	1.42 J	20.32	1.51 J	7.28	2.67 J	6.27 J
Potassium, Total	NA	14200	12200	14700	7240	18700	14200	14700
Selenium, Total	10	12.4	4.27 J	20.5	15.7	10	20.6	18.1
Silver, Total	50	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)	ND (0.4)
Sodium, Total	20000	70300	18600	206000	36400	74400	30600	30300
Thallium, Total	0.5	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Vanadium, Total	NA	5.07	1.98 J	12.45	ND (5)	4.25 J	2.78 J	7.07
Zinc, Total	2000	12.91	6.39 J	66.41	ND (10)	11.16	9.2 J	39.23 J

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- For test methods used, see the laboratory data sheets.
- Water analytical results are compared to the New York TOGS 111 Ambient Water Quality Standards.
- Exceedances of AWQS criteria are shaded in gray.

Table 3d
Remedial Investigation
Pesticide Analytical Results in Groundwater
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name Sample Name Sample Date Lab Sample ID	New York TOGS 111 Ambient Water Quality Standards	MW-01 MW-01-20230224 02/24/2023 L2309998-01	MW-02 MW-02-20230227 02/27/2023 L2310327-01	MW-03 MW-03-20230227 02/27/2023 L2310327-02	MW-06 MW-06-20230227 02/27/2023 L2310327-03	MW-08 MW-08-20230227 02/27/2023 L2310327-04	MW-11 MW-11-20230227 02/27/2023 L2310327-05	MW-11 DUP-01-02272023 02/27/2023 L2310327-06
PCBs (ug/L)								
Aroclor-1016 (PCB-1016)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Aroclor-1221 (PCB-1221)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Aroclor-1232 (PCB-1232)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Aroclor-1242 (PCB-1242)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Aroclor-1248 (PCB-1248)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Aroclor-1254 (PCB-1254)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Aroclor-1260 (PCB-1260)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Aroclor-1262 (PCB-1262)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Aroclor-1268 (PCB-1268)	NA	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Polychlorinated biphenyls (PCBs)	0.09	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)	ND (0.071)
Pesticides (ug/L)								
4,4'-DDD	0.3	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
4,4'-DDE	0.2	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
4,4'-DDT	0.2	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
Aldrin	0	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
alpha-BHC	0.01	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
alpha-Chlordane (cis)	NA	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
beta-BHC	0.04	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
Chlordane	0.05	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)
delta-BHC	0.04	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
Dieldrin	0.004	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
Endosulfan I	NA	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
Endosulfan II	NA	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
Endosulfan sulfate	NA	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
Endrin	0	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
Endrin aldehyde	5	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
Endrin ketone	5	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
gamma-BHC (Lindane)	0.05	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
gamma-Chlordane (trans)	NA	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
Heptachlor	0.04	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
Heptachlor epoxide	0.03	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.014)
Methoxychlor	35	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)
Toxaphene	0.06	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)	ND (0.143)

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- Exceedances of AWQS criteria are shaded in gray.

Table 3e
Remedial Investigation
Emerging Contaminants Analytical Results in Groundwater
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	New York TOGS	MW-01	MW-02	MW-03	MW-06	MW-08	MW-11	MW-11
Sample Name	111 Ambient	MW-01-20230224	MW-02-20230227	MW-03-20230227	MW-06-20230227	MW-08-20230227	MW-11-20230227	DUP-01-02272023
Sample Date	Water Quality	02/24/2023	02/27/2023	02/27/2023	02/27/2023	02/27/2023	02/27/2023	02/27/2023
Lab Sample ID	Standards	L2309998-01	L2310327-01	L2310327-02	L2310327-03	L2310327-04	L2310327-05	L2310327-06
PFAS (ng/L)								
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	NA	ND (6.19)	ND (6.63)	ND (12.8)	ND (6.12)	ND (6.18)	ND (6.11)	ND (6.35)
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	NA	ND (6.19)	ND (6.63)	ND (12.8)	ND (6.12)	ND (6.18)	ND (6.11)	ND (6.35)
N-Ethyl Perfluorooctanesulfonamidoacetic Acid (NEtFOSAA)	NA	ND (1.55)	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	1.07 J	1.11 J
N-Methyl Perfluorooctanesulfonamidoacetic Acid (MeFOSAA)	NA	ND (1.55)	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	ND (1.53)	ND (1.59)
Perfluorobutanesulfonic acid (PFBS)	NA	16.5	5.97	122	10.2	6.1	18	17.5
Perfluorobutanoic acid (PFBA)	NA	36.3	12.8	291	41.3	ND (6.18)	20.8	20.6
Perfluorodecanesulfonic acid (PFDS)	NA	ND (1.55)	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	ND (1.53)	ND (1.59)
Perfluorodecanoic acid (PFDA)	NA	0.773 J	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	ND (1.53)	ND (1.59)
Perfluorododecanoic acid (PFDoDA)	NA	ND (1.55)	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	ND (1.53)	ND (1.59)
Perfluoroheptanesulfonic acid (PFHpS)	NA	ND (1.55)	ND (1.66)	ND (3.2)	0.612 J	ND (1.54)	1.45 J	1.51 J
Perfluoroheptanoic acid (PFHpA)	NA	7.66	7.46	89.1	41.2	1.08 J+	16.4	15.6
Perfluorohexanesulfonic acid (PFHxS)	NA	3.71	3.4	17.1	11.7	2.7	27.2	25.9
Perfluorohexanoic acid (PFHxA)	NA	30.1	15	420	49.4	4.63	29.1	30
Perfluorononanoic acid (PFNA)	NA	2.47	1.74	3.36	1.38 J	ND (1.54)	2.44	2.38
Perfluorooctane sulfonamide (PFOSA)	NA	ND (1.55)	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	ND (1.53)	ND (1.59)
Perfluorooctanesulfonic acid (PFOS)	2.7	15.5	7.71	9.28	7.35 J	0.772 J	38	40.6
Perfluorooctanoic acid (PFOA)	6.7	15.7	11.4	107	248	2.32	65.5	60.7
Perfluoropentanoic acid (PFPeA)	NA	50.7	20	585	44.9	ND (3.09)	30.7	30
Perfluorotetradecanoic acid (PFTeDA)	NA	ND (1.55)	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	ND (1.53)	ND (1.59)
Perfluorotridecanoic acid (PFTrDA)	NA	ND (1.55)	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	ND (1.53)	ND (1.59)
Perfluoroundecanoic acid (PFUnDA)	NA	ND (1.55)	ND (1.66)	ND (3.2)	ND (1.53)	ND (1.54)	ND (1.53)	ND (1.59)
US EPA PFAS (PFOS + PFOA)	NA	31.2	19.1	116	255	3.09 J	104	101

ABBREVIATIONS AND NOTES:
µg/L: micrograms per liter
ng/L: nanogram per liter

-: Not Analyzed
bgs: below ground surface
ft: feet
R: Rejected
J: Value is estimated.
NA: Not Applicable
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit

- For test methods used, see the laboratory data sheets.
- Water analytical results are compared to the NYSDEC Ambient Water Quality Guidance Values.
- Exceedances of AWQGVs are shaded in gray.

Table 4
Remedial Investigation
Volatile Organic Compound Analytical Results in Soil Vapor
Former Fiedler Waterproofing Masonry BCP Site C203160
91 Bruckner Boulevard, Bronx, New York

Location Name	SV-01	SV-02	SV-03	SV-04	SV-05	SV-06	SV-07	SV-08	SV-09	SV-10	SV-11
Sample Name	SV-01-20230215	SV-02-20230215	SV-03-20230215	SV-04-20230215	SV-05-20230215	SV-06-20230216	SV-07-20230216	SV-08-20230216	SV-09-20230216	SV-10-20230215	SV-11-20230215
Sample Date	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/15/2023	02/16/2023	02/16/2023	02/16/2023	02/16/2023	02/15/2023	02/15/2023
Lab Sample ID	L2308185-03	L2308185-04	L2308185-05	L2308185-02	L2308185-06	L2308482-01	L2308482-02	L2308482-03	L2308482-04	L2308185-01	L2308185-07
1,1,1-Trichloroethane	ND (1.09)	ND (1.56)	ND (1.4)	3	5.78	ND (1.09)	ND (4.2)	ND (3.64)	ND (4.2)	ND (1.82)	ND (1.09)
1,1,2,2-Tetrachloroethane	ND (1.37)	ND (1.96)	ND (1.76)	ND (2.37)	ND (3.43)	ND (1.37)	ND (5.28)	ND (4.58)	ND (5.28)	ND (2.29)	ND (1.37)
1,1,2-Trichloroethane	ND (1.09)	ND (1.56)	ND (1.4)	ND (1.88)	ND (2.73)	ND (1.09)	ND (4.2)	ND (3.64)	ND (4.2)	ND (1.82)	ND (1.09)
1,1-Dichloroethane	ND (0.809)	ND (1.16)	ND (1.04)	ND (1.4)	ND (2.02)	ND (0.809)	ND (3.11)	ND (2.7)	ND (3.11)	ND (1.35)	ND (0.809)
1,1-Dichloroethene	ND (0.793)	ND (1.13)	ND (1.01)	ND (1.37)	ND (1.98)	ND (0.793)	ND (3.05)	ND (2.64)	ND (3.05)	ND (1.32)	ND (0.793)
1,2,4-Trichlorobenzene	ND (1.48)	ND (2.12)	ND (1.9)	ND (2.56)	ND (3.71)	ND (1.48)	ND (5.71)	ND (4.95)	ND (5.71)	ND (2.47)	ND (1.48)
1,2,4-Trimethylbenzene	61	51.6	58	831	2190	58	84.6	59	94.4	757	56.5
1,2-Dibromoethane (Ethylene Dibromide)	ND (1.54)	ND (2.2)	ND (1.97)	ND (2.65)	ND (3.84)	ND (1.54)	ND (5.91)	ND (5.13)	ND (5.91)	ND (2.56)	ND (1.54)
1,2-Dichlorobenzene	ND (1.2)	ND (1.72)	ND (1.54)	ND (2.07)	ND (3.01)	ND (1.2)	ND (4.62)	ND (4.01)	ND (4.62)	ND (2)	ND (1.2)
1,2-Dichloroethane	ND (0.809)	ND (1.16)	ND (1.04)	ND (1.4)	ND (2.02)	ND (0.809)	ND (3.11)	ND (2.7)	ND (3.11)	ND (1.35)	ND (0.809)
1,2-Dichloropropane	ND (0.924)	ND (1.32)	ND (1.18)	ND (1.59)	ND (2.31)	ND (0.924)	ND (3.55)	ND (3.08)	ND (3.55)	ND (1.54)	ND (0.924)
1,2-Dichlorotetrafluoroethane (CFC 114)	ND (1.4)	ND (2)	ND (1.79)	ND (2.41)	ND (3.49)	ND (1.4)	ND (5.38)	ND (4.66)	ND (5.38)	ND (2.33)	ND (1.4)
1,3,5-Trimethylbenzene	15.6	12.8	15.3	259	541	15.3	22.8	15.5	22	234	14.9
1,3-Butadiene	1.13	ND (0.633)	ND (0.566)	3.67	2.68	41.6	53.3	4.36	28.3	39.6	0.759
1,3-Dichlorobenzene	ND (1.2)	ND (1.72)	ND (1.54)	ND (2.07)	ND (3.01)	ND (1.2)	ND (4.62)	ND (4.01)	ND (4.62)	ND (2)	ND (1.2)
1,4-Dichlorobenzene	ND (1.2)	ND (1.72)	ND (1.54)	ND (2.07)	ND (3.01)	ND (1.2)	ND (4.62)	ND (4.01)	ND (4.62)	ND (2)	ND (1.2)
1,4-Dioxane	ND (0.721)	ND (1.03)	ND (0.923)	ND (1.24)	ND (1.8)	ND (0.721)	ND (2.77)	ND (2.4)	ND (2.77)	ND (1.2)	ND (0.721)
2,2,4-Trimethylpentane	ND (0.934)	ND (1.34)	2.23	ND (1.61)	3.77	ND (0.934)	ND (3.59)	ND (3.12)	ND (3.59)	ND (1.56)	3.38
2-Butanone (Methyl Ethyl Ketone)	47.8	79.9	72	27	169	50.7	56.3	54.9	60.2	41	61.1
2-Hexanone (Methyl Butyl Ketone)	13.4	18.8	18.6	20.1	61.9	4.63	3.5	4.06	3.33	28	15.4
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	14.7	14.9	17	267	457	14.5	20.5	14.2	24.7	200	14.9
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ND (2.05)	ND (2.93)	ND (2.63)	6.68	21.6	3.8	ND (7.87)	ND (6.84)	ND (7.87)	10.2	ND (2.05)
Acetone	829	2570	2380	834	2170	957	3610	2780	3440	760	2590
Allyl chloride	ND (0.626)	ND (0.895)	ND (0.801)	ND (1.08)	ND (1.57)	ND (0.626)	ND (2.41)	ND (2.09)	ND (2.41)	ND (1.04)	ND (0.626)
Benzene	18.3	19.9	17	1.87	4.28	22	27.9	18.7	25.1	13.4	20.6
Benzyl Chloride (alpha-Chlorotoluene)	ND (1.04)	ND (1.48)	ND (1.33)	ND (1.79)	ND (2.59)	ND (1.04)	ND (3.98)	ND (3.45)	ND (3.98)	ND (1.72)	ND (1.04)
Bromodichloromethane	ND (1.34)	ND (1.92)	ND (1.72)	ND (2.31)	ND (3.35)	ND (1.34)	ND (5.15)	ND (4.47)	ND (5.15)	ND (2.23)	ND (1.34)
Bromoform	ND (2.07)	ND (2.96)	ND (2.65)	ND (3.57)	ND (5.17)	ND (2.07)	ND (7.95)	ND (6.9)	ND (7.95)	ND (3.44)	ND (2.07)
Bromomethane (Methyl Bromide)	ND (0.777)	ND (1.11)	ND (0.994)	ND (1.34)	ND (1.94)	ND (0.777)	ND (2.99)	ND (2.59)	ND (2.99)	ND (1.29)	ND (0.777)
Carbon disulfide	5.89	1.19	1.59	1.6	ND (1.56)	7.22	ND (2.39)	ND (2.08)	3.15	34.9	1.44
Carbon tetrachloride	ND (1.26)	ND (1.8)	ND (1.61)	ND (2.17)	ND (3.15)	ND (1.26)	ND (4.84)	ND (4.2)	ND (4.84)	ND (2.09)	ND (1.26)
Chlorobenzene	ND (0.921)	ND (1.32)	ND (1.18)	ND (1.59)	ND (2.3)	ND (0.921)	ND (3.54)	ND (3.07)	ND (3.54)	ND (1.53)	ND (0.921)
Chloroethane	ND (0.528)	ND (0.755)	ND (0.676)	ND (0.91)	ND (1.32)	1.23	ND (2.03)	ND (1.76)	ND (2.03)	1.16	ND (0.528)
Chloroform (Trichloromethane)	23.6	ND (1.4)	ND (1.25)	8.55	ND (2.44)	2	ND (3.76)	ND (3.26)	ND (3.76)	4.81	1.36
Chloromethane (Methyl Chloride)	ND (0.413)	1.11	ND (0.529)	ND (0.712)	ND (1.03)	1.05	3.37	ND (1.38)	5.27	4.58	0.712
cis-1,2-Dichloroethene	ND (0.793)	ND (1.13)	ND (1.01)	ND (1.37)	ND (1.98)	ND (0.793)	ND (3.05)	ND (2.64)	ND (3.05)	ND (1.32)	ND (0.793)
cis-1,3-Dichloropropene	ND (0.908)	ND (1.3)	ND (1.16)	ND (1.57)	ND (2.27)	ND (0.908)	ND (3.49)	ND (3.03)	ND (3.49)	ND (1.51)	ND (0.908)
Cyclohexane	3.86	4.72	3.68	1.88	5.06	12.7	7.99	4.75	8.74	12.8	4.96
Dibromochloromethane	ND (1.7)	ND (2.44)	ND (2.18)	ND (2.94)	ND (4.26)	ND (1.7)	ND (6.55)	ND (5.68)	ND (6.55)	ND (2.84)	ND (1.7)
Dichlorodifluoromethane (CFC-12)	2.31	2.22	2.23	2.28	3.21	2.2	ND (3.8)	ND (3.3)	ND (3.8)	2.35	2.2
Ethanol	23.4	48.4	23.9	17	60.3	18.4	67.6	46	63.3	19.2	36
Ethyl acetate	ND (1.8)	ND (2.57)	ND (2.31)	ND (3.11)	ND (4.5)	ND (1.8)	ND (6.92)	ND (6.02)	ND (6.92)	ND (3.01)	ND (1.8)
Ethylbenzene	47.8	40.6	50	282	357	48.2	73.4	53.4	63.9	287	47.8
Hexachlorobutadiene	ND (2.13)	ND (3.05)	ND (2.73)	ND (3.68)	ND (5.33)	ND (2.13)	ND (8.2)	ND (7.11)	ND (8.2)	ND (3.55)	ND (2.13)
Hexane	18.3	25.9	18.6	2.54	11.9	95.9	49	25.8	51.5	42.3	26.1
Isopropyl Alcohol (2-Propanol)	3.42	7.94	4.67	5.31	12.8	3.83	25.6	11.6	20	5.16	7.01
m,p-Xylenes	151	129	157	1110	1460	152	243	175	209	1090	151
Methyl Tert Butyl Ether (MTBE)	ND (0.721)	ND (1.03)	ND (0.923)	ND (1.24)	ND (1.8)	ND (0.721)	ND (2.77)	ND (2.4)	ND (2.77)	ND (1.2)	ND (0.721)
Methylene chloride (Dichloromethane)	ND (1.74)	ND (2.48)	2.28	ND (2.99)	ND (4.34)	14	ND (6.67)	ND (5.8)	ND (6.67)	ND (2.9)	2.33
N-Heptane	26.1	28.7	27.8	15.7	31.5	52.5	42.6	29	42.2	42.6	30.6
o-Xylene	50.8	42.6	51.7	582	838	51.7	87.7	58.6	72.1	569	50.4
Styrene	3.5	2.92	4.34	1.7	ND (2.13)	4.98	4.81	4.98	5.45	1.66	4.09
Tert-Butyl Alcohol (tert-Butanol)	3.82	9.82	6.12	2.94	10.2	ND (1.52)	ND (5.82)	ND (5.06)	ND (5.82)	ND (2.53)	7.28
Tetrachloroethene	23.5	27	24.5	30.7	51.9	21.5	232	86.1	45.8	14.2	30.2
Tetrahydrofuran	2.9	3.63	2.83	ND (2.54)	ND (3.69)	4.01	6.64	ND (4.93)	8.55	ND (2.46)	3.6
Toluene	242	241	277	171	219	268	353	301	368	210	264
trans-1,2-Dichloroethene	ND (0.793)	ND (1.13)	ND (1.01)	ND (1.37)	ND (1.98)	ND (0.793)	ND (3.05)	ND (2.64)	ND (3.05)	ND (1.32)	ND (0.793)
trans-1,3-Dichloropropene	ND (0.908)	ND (1.3)	ND (1.16)	ND (1.57)	ND (2.27)	ND (0.908)	ND (3.49)	ND (3.03)	ND (3.49)	ND (1.51)	ND (0.908)
Trichloroethene	ND (1.07)	ND (1.54)	ND (1.38)	ND (1.85)	ND (2.69)	ND (1.07)	ND (4.13)	ND (3.58)	ND (4.13)	ND (1.79)	ND (1.07)
Trichlorofluoromethane (CFC-11)	1.33	ND (1.61)	2.15	10.1	97.2	4.21	155	82	ND (4.32)	6.07	22
Trifluorotrichloroethane (Freon 113)	ND (1.53)	ND (2.19)	ND (1.96)	ND (2.64)	ND (3.83)	ND (1.53)	ND (5.89)	ND (5.11)	ND (5.89)	ND (2.55)	ND (1.53)
Vinyl Bromide (Bromoethene)	ND (0.874)	ND (1.25)	ND (1.12)	ND (1.51)	ND (2.19)	ND (0.874)	ND (3.36)	ND (2.92)	ND (3.36)	ND (1.46)	ND (0.874)
Vinyl chloride	ND (0.511)	ND (0.731)	ND (0.654)	ND (0.882)	ND (1.28)	2.39	ND (1.97)	ND (1.71)	ND (1.97)	1.72	ND (0.511)
SUM of VOCs	1634	3385	3241	4499	8785	1936	5231	3829	4665	4433	3471
SUM of CVOCs	23.5	27	26.8	33.7	57.7	37.9	232	86.1	45.8	15.9	32.5
SUM of BTEX	510	473	553	2147	2878	542	785	607	738	2169	534

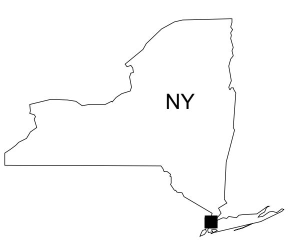
ABBREVIATIONS AND NOTES:

µg/m³ : micrograms per cubic meter

BTEX: Benzene, Toluene, Ethylbenzene, Xylenes
CVOCs: Chlorinated volatile organic compounds
ND (2.5): Not detected, number in parentheses is the laboratory reporting limit
VOCs: Volatile Organic Compounds

- For test methods used, see the laboratory data sheets.
- SUM of CVOCs includes the following compounds: carbon tetrachloride, 1,1-dichloroethene, cis-1,2-dichloroethene, trichloroethene, methylene chloride, tetrachloroethene, 1,1,1-trichloroethane, vinyl chloride

FIGURES



MAP SOURCE: USGS
SITE COORDINATES: 40°48'20"N, 73°55'27"W

HALEY ALDRICH

REMEDIAL INVESTIGATION REPORT
91 BRUCKNER BOULEVARD
BRONX, NY

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
MARCH 2023

FIGURE 1

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\0201577\GIS\Maps\2022_08_204520_000_0001_PROJECT_LOCUS.mxd — USER: hwachholz — LAST SAVED: 8/5/2022 12:22:09 PM

LEGEND

PARCEL BOUNDARY

SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
3. AERIAL IMAGERY SOURCE: ESRI

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

91 BRUCKNER BOULEVARD
BRONX, NEW YORK

SITE PLAN

MARCH 2023

FIGURE 2

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\0201577\GIS\Maps\2022_08_204520\204520_000_0002_SITE_PLAN.mxd — USER: hwachholz — LAST SAVED: 8/5/2022 12:24:03 PM

LEGEND

- MONITORING WELL
- SOIL BORING
- SOIL VAPOR PROBE
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
3. AERIAL IMAGERY SOURCE: NEARMAP, 27 SEPTEMBER 2022

0 20 40
SCALE IN FEET

HALEY ALDRICH

91 BRUCKNER BOULEVARD
BRONX, NEW YORK

SAMPLE LOCATION PLAN

MARCH 2023

FIGURE 3

GIS:\\haleyaldrich\share\CF\Projects\0204520\GIS\Maps\2023_03\204520_000_0003_SAMPLE_LOCATION_PLAN.mxd - khensen - 4/6/2023 5:09:57 AM

LEGEND

MONITORING WELL

SITE BOUNDARY

PARCEL BOUNDARY

14.0 DEPTH TO GROUNDWATER CONTOUR, IN FEET (DASHED WHERE INFERRED)

GROUNDWATER FLOW DIRECTION

13.88 GROUNDWATER ELEVATION (NAVD 88)

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.

2. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING

3. AERIAL IMAGERY SOURCE: NEARMAP, 27 SEPTEMBER 2022

N

0 20 40

SCALE IN FEET

HALEY ALDRICH

91 BRUCKNER BOULEVARD
BRONX, NEW YORK

GROUNDWATER
CONTOUR MAP

MARCH 2023

FIGURE 4

SB-02	02/15/2023 L2308181-04 SB-02 (0-0.5) 0 - 0.5 (ft)	02/15/2023 L2308181-05 SB-02 (6-8) 6 - 8 (ft)	02/15/2023 L2308181-06 SB-02 (12-14) 12 - 14 (ft)
Total Metals			
Barium	514	245	41.6
Lead	155	42.1	ND (4.34)
Mercury	0.467	0.462	ND (0.073)
Zinc	773	199	37.8
Pesticides			
4,4'-DDD	0.0049 J+	0.00876 J+	ND (0.00176)
4,4'-DDE	0.0188 J+	0.0653 J+	0.00116 J
4,4'-DDT	0.1 J+	0.247 J+	0.00486
Dieldrin	0.00802 J+	0.00759 J+	ND (0.0011)
Semi-Volatile Organic Compounds			
Benzo(a)anthracene	*5.9*	*4*	0.11
Benzo(a)pyrene	6.6	5.2	0.11 J
Benzo(b)fluoranthene	*5.4*	*5.9*	0.14
Benzo(k)fluoranthene	*2.5*	*2.2*	0.053 J
Chrysene	*5.6*	*3.8*	0.1 J
Dibenz(a,h)anthracene	0.93	0.81	ND (0.11)
Indeno(1,2,3-cd)pyrene	4.4	3.5	0.087 J

SB-04	02/13/2023 L2307700-06 SB-04 (0-0.5) 0 - 0.5 (ft)	02/13/2023 L2307700-07 SB-04 (6-8) 6 - 8 (ft)	02/13/2023 L2307700-08 SB-04 (12-14) 12 - 14 (ft)
Total Metals			
Arsenic	15.1	1.48	0.588 J
Barium	357	60.3	34.7
Copper	86	18.4	12.1
Lead	*756*	16.1	3.78 J
Mercury	*1.98*	0.082	ND (0.078)
Selenium	*4.24*	0.261 J	ND (1.65)
Zinc	656	59.6	34.2

SB-04-03	02/17/2023 L2308771-02 SB-04-03 (6-8) 6 - 8 (ft)
Total Metals	
Arsenic	*21.1*
Barium	550
Cadmium	2.79
Copper	381
Lead	*1980*
Mercury	*2.98 J*
Zinc	930
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	*1.1 J*
Benzo(a)pyrene	1.3 J
Benzo(b)fluoranthene	1.5 J
Chrysene	*1.1 J*
Indeno(1,2,3-cd)pyrene	0.9 J

SB-11	02/15/2023 L2308181-07 SB-11 (0-0.5) 0 - 0.5 (ft)	02/15/2023 L2308181-08 SB-11 (6-8) 6 - 8 (ft)	02/15/2023 L2308181-09 SB-11 (12-14) 12 - 14 (ft)
Total Metals			
Copper	28.6	68.3	12.5
Lead	116	*1730*	ND (4.14)
Mercury	0.659	0.064 J	ND (0.069)
Zinc	156	45.7	40.8

SB-16	02/27/2023 L2310326-02 SB-16 (2-4) 2 - 4 (ft)
Total Metals	
Copper	114
Lead	348
Mercury	0.651
Zinc	359

SB-13	02/13/2023 L2307700-03 SB-13 (0-0.5) 0 - 0.5 (ft)	02/13/2023 L2307700-04 SB-13 (6-8) 6 - 8 (ft)	02/13/2023 L2307700-05 SB-13 (12-14) 12 - 14 (ft)
Total Metals			
Barium	*1440*	61.9	43.3
Lead	*2610*	40.7	9.99
Mercury	0.258	ND (0.069)	ND (0.084)
Zinc	1540	77.6	39.4
Pesticides			
4,4'-DDD	0.00497 J+	0.000907 J	ND (0.00176)
4,4'-DDE	0.045 J+	0.0126	ND (0.00176)
4,4'-DDT	0.217 J+	0.0331	ND (0.00176)
Dieldrin	0.0242 J+	0.00368	ND (0.0011)
Semi-Volatile Organic Compounds			
Benzo(a)anthracene	*4.5*	0.054 J	ND (0.11)
Benzo(a)pyrene	4.5	0.048 J	ND (0.15)
Benzo(b)fluoranthene	*5.5*	0.063 J	ND (0.11)
Benzo(k)fluoranthene	*1.9*	ND (0.11)	ND (0.11)
Chrysene	*4.4*	0.048 J	ND (0.11)
Dibenz(a,h)anthracene	0.65	ND (0.11)	ND (0.11)
Indeno(1,2,3-cd)pyrene	3.4	0.032 J	ND (0.15)

SB-03	02/15/2023 L2308181-01 SB-03 (0-0.5) 0 - 0.5 (ft)	02/15/2023 L2308181-02 SB-03 (6-8) 6 - 8 (ft)	02/15/2023 L2308181-03 SB-03 (12-14) 12 - 14 (ft)
Total Metals			
Lead	173	269	5.24
Mercury	0.116	0.225	ND (0.071)
Zinc	82.4	138	31
Semi-Volatile Organic Compounds			
Benzo(a)pyrene	1.2	0.98	ND (0.14)
Benzo(b)fluoranthene	1.3	1.1	ND (0.11)
Indeno(1,2,3-cd)pyrene	0.75	0.66	ND (0.14)

SB-01	02/14/2023 L2307869-04 SB-01 (0-0.5) 0 - 0.5 (ft)	02/14/2023 L2307869-05 SB-01 (6-8) 6 - 8 (ft)	02/14/2023 L2307869-06 SB-01 (12-14) 12 - 14 (ft)
Total Metals			
Copper	68.4	11.5	12.3
Mercury	0.249	ND (0.071)	ND (0.07)
Nickel	53.3	9.21	9.42
Zinc	86.3	415	30.4

SB-14	02/13/2023 L2307700-14 SB-14 (0-0.5) 0 - 0.5 (ft)	02/13/2023 L2307700-15 SB-14 (6-8) 6 - 8 (ft)	02/13/2023 L2307700-16 SB-14 (12-14) 12 - 14 (ft)
Total Metals			
Lead	209	12 J	3.49 J
Mercury	0.394	0.073 J	ND (0.073)
Zinc	120	54.8	42.8

SB-05	02/13/2023 L2307700-09 SB-05 (0-0.5) 0 - 0.5 (ft)	02/13/2023 L2307700-22 SB-05 (6-8) 6 - 8 (ft)	02/13/2023 L2307700-23 SB-05 (12-14) 12 - 14 (ft)
Total Metals			
Lead	302	26.9	3.94 J
Mercury	0.19	0.163	ND (0.07)
Zinc	142	55.2	50.1

SB-15	02/27/2023 L2310326-01 SB-15 (2-4) 2 - 4 (ft)
Total Metals	
Lead	108
Mercury	0.21

SB-08	02/14/2023 L2307869-01 SB-08 (0-0.5) 0 - 0.5 (ft)	02/14/2023 L2307869-02 SB-08 (6-8) 6 - 8 (ft)	02/14/2023 L2307869-03 SB-08 (12-14) 12 - 14 (ft)
Total Metals			
Copper	62.1	13.4	14.5

SB-12	02/13/2023 L2307700-20 SB-12 (0-0.5) 0 - 0.5 (ft)	02/13/2023 L2307700-01 SB-12 (6-8) 6 - 8 (ft)	02/13/2023 L2307700-02 SB-12 (12-14) 12 - 14 (ft)
Total Metals			
Copper	98.7	164	11.1
Lead	442	154	3.67 J
Mercury	0.272	0.172	ND (0.084)
Zinc	257	232	94.8
Semi-Volatile Organic Compounds			
Benzo(b)fluoranthene	0.24	1.1	ND (0.11)
Indeno(1,2,3-cd)pyrene	0.15	0.64	ND (0.14)

SB-17	02/27/2023 L2310326-03 SB-17 (3-5) 3 - 5 (ft)
Total Metals	
Arsenic	15.2
Barium	420
Copper	242
Lead	*725*
Mercury	*1.2*
Zinc	905
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	*2*
Benzo(a)pyrene	2.1
Benzo(b)fluoranthene	*2.2*
Chrysene	*1.8*
Indeno(1,2,3-cd)pyrene	1.3

SB-10	02/13/2023 L2307700-11 SB-10 (0-0.5) 0 - 0.5 (ft)	02/13/2023 L2307700-12 SB-10 (6-8) 6 - 8 (ft)	02/13/2023 L2307700-13 SB-10 (12-14) 12 - 14 (ft)
Semi-Volatile Organic Compounds			
Benzo(a)anthracene	*2.7*	ND (0.1)	ND (0.1)
Benzo(a)pyrene	2.2	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	*2.3*	ND (0.1)	ND (0.1)
Chrysene	*3.1*	ND (0.1)	ND (0.1)
Indeno(1,2,3-cd)pyrene	1.2	ND (0.14)	ND (0.14)

LEGEND

- SOIL BORING
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 OF THE OFFICIAL COMPILATION OF NEW YORK CODES, RULES, AND REGULATIONS (NYCRR) PART 375 UNRESTRICTED USE SOIL CLEANUP OBJECTIVES (SCOS), RESTRICTED-RESIDENTIAL SCOS, AND 40 CFR 261 SUBPART C AND TABLE 1 OF 40 CFR 261.24.
3. DESCRIPTIONS:
NY-RESR = NYSDEC PART 375 RESTRICTED-RESIDENTIAL USE SCO
NY-UNRES = NYSDEC PART 375 UNRESTRICTED USE SCO
NY-PGW = NYDEC PART 375 PROTECTION OF GROUNDWATER CRITERIA
4. EXCEEDANCES OF THE NY-UNRES ARE SHADED GRAY
5. EXCEEDANCES OF THE NY-UNRES AND NY-RESRR ARE SHADED YELLOW
6. EXCEEDANCES OF THE NY-PGW ARE SHOWN IN BLACK TEXT AND IN ITALICS
7. RESULTS ARE DISPLAYED IN MILLIGRAMS PER KILOGRAM (mg/kg).
8. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
9. AERIAL IMAGERY SOURCE: NEARMAP, 27 SEPTEMBER 2022

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SCALE IN FEET

HALEY ALDRICH

91 BRUCKNER BOULEVARD
BRONX, NEW YORK

SOIL RESULTS EXCEEDANCES MAP

MARCH 2023

FIGURE 5

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0204520\GIS\Maps\2023_03\0204520_000_0000_SOIL_RESULTS_EXCEEDANCES_MAP.mxd - khensen - 3/31/2023 6:11:44 AM

SB-13	02/13/2023 L2307700-03 SB-13 (0-0.5) 0 - 0.5 (ft)	02/13/2023 L2307700-04 SB-13 (6-8) 6 - 8 (ft)	02/13/2023 L2307700-05 SB-13 (12-14) 12 - 14 (ft)
Perfluorooctanesulfonic acid (PFOS)	1.16	ND (0.196)	0.166 J

LEGEND

- SOIL BORING
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION(NYSDEC) PART 375 REMEDIAL PROGRAMS GUIDANCE ON THE SAMPLING, ANALYSIS, AND ASSESSMENT OF PER-AND POLYFLUOROALKYL SUBSTANCES (PFAS).
3. NY-RESR = NYSDEC PART 375 RESTRICTED-RESIDENTIAL USE SCO
4. NY-UNRES = NYSDEC PART 375 UNRESTRICTED USE SCO
5. EXCEEDANCES OF THE NY-UNRES SCOS ARE SHADED GRAY.
6. EXCEEDANCES OF THE NY-UNRES AND NY-RESR ARE SHADED YELLOW.
7. RESULTS ARE DISPLAYED IN MICROGRAMS PER KILOGRAMS (ug/kg).
8. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
9. AERIAL IMAGERY SOURCE: NEARMAP, 27 SEPTEMBER 2022

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SCALE IN FEET

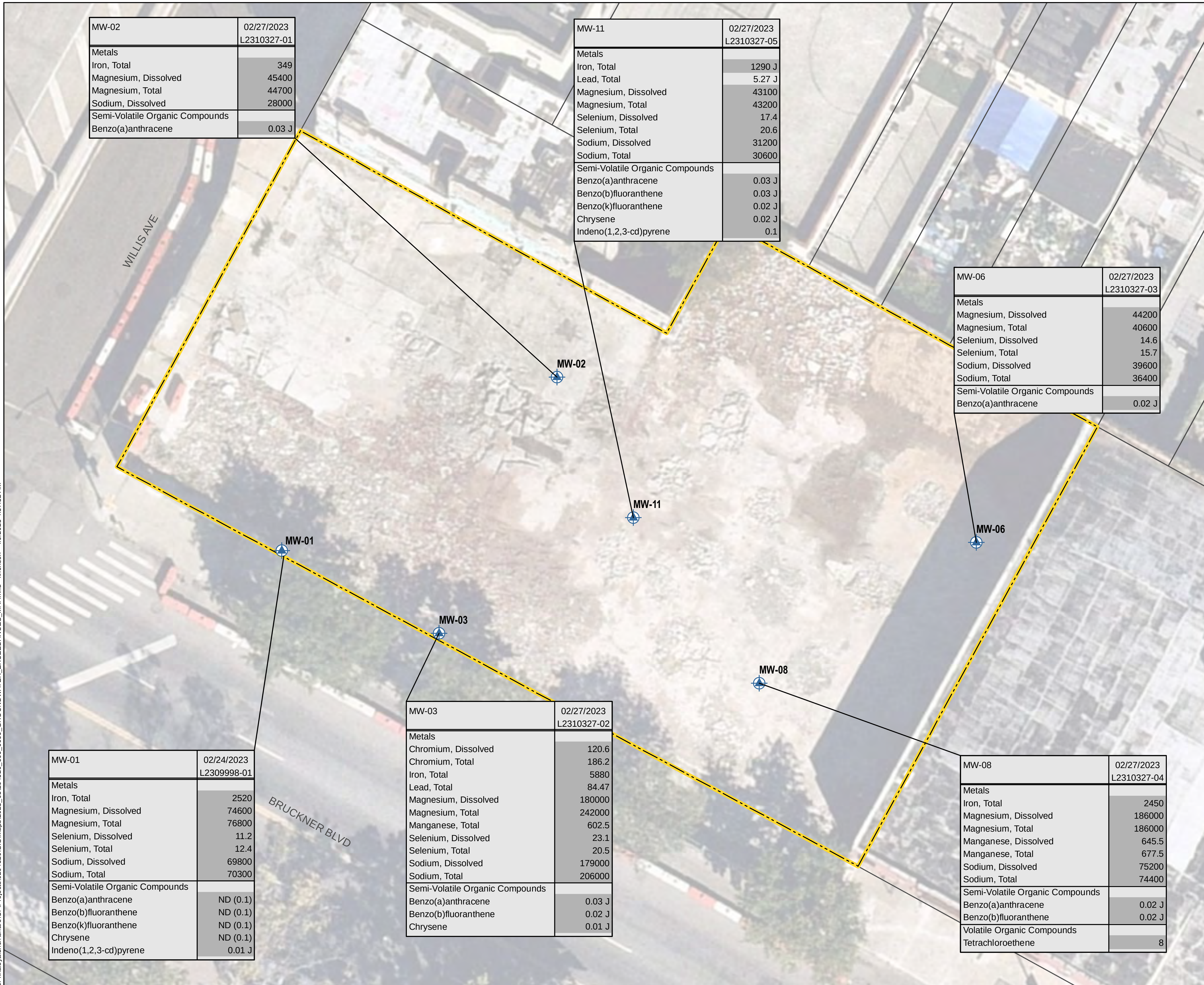
HALEY ALDRICH

91 BRUCKNER BOULEVARD
BRONX, NEW YORK

EMERGING CONTAMINANT SOIL RESULTS EXCEEDANCES MAP

MARCH 2023

FIGURE 6



MW-02	02/27/2023 L2310327-01
Metals	
Iron, Total	349
Magnesium, Dissolved	45400
Magnesium, Total	44700
Sodium, Dissolved	28000
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	0.03 J

MW-11	02/27/2023 L2310327-05
Metals	
Iron, Total	1290 J
Lead, Total	5.27 J
Magnesium, Dissolved	43100
Magnesium, Total	43200
Selenium, Dissolved	17.4
Selenium, Total	20.6
Sodium, Dissolved	31200
Sodium, Total	30600
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	0.03 J
Benzo(b)fluoranthene	0.03 J
Benzo(k)fluoranthene	0.02 J
Chrysene	0.02 J
Indeno(1,2,3-cd)pyrene	0.1

MW-06	02/27/2023 L2310327-03
Metals	
Magnesium, Dissolved	44200
Magnesium, Total	40600
Selenium, Dissolved	14.6
Selenium, Total	15.7
Sodium, Dissolved	39600
Sodium, Total	36400
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	0.02 J

MW-01	02/24/2023 L2309998-01
Metals	
Iron, Total	2520
Magnesium, Dissolved	74600
Magnesium, Total	76800
Selenium, Dissolved	11.2
Selenium, Total	12.4
Sodium, Dissolved	69800
Sodium, Total	70300
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	ND (0.1)
Benzo(b)fluoranthene	ND (0.1)
Benzo(k)fluoranthene	ND (0.1)
Chrysene	ND (0.1)
Indeno(1,2,3-cd)pyrene	0.01 J

MW-03	02/27/2023 L2310327-02
Metals	
Chromium, Dissolved	120.6
Chromium, Total	186.2
Iron, Total	5880
Lead, Total	84.47
Magnesium, Dissolved	180000
Magnesium, Total	242000
Manganese, Total	602.5
Selenium, Dissolved	23.1
Selenium, Total	20.5
Sodium, Dissolved	179000
Sodium, Total	206000
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	0.03 J
Benzo(b)fluoranthene	0.02 J
Chrysene	0.01 J

MW-08	02/27/2023 L2310327-04
Metals	
Iron, Total	2450
Magnesium, Dissolved	186000
Magnesium, Total	186000
Manganese, Dissolved	645.5
Manganese, Total	677.5
Sodium, Dissolved	75200
Sodium, Total	74400
Semi-Volatile Organic Compounds	
Benzo(a)anthracene	0.02 J
Benzo(b)fluoranthene	0.02 J
Volatile Organic Compounds	
Tetrachloroethene	8

LEGEND

MONITORING WELL

SITE BOUNDARY

PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION(NYSDEC) TECHNICAL AND OPERATIONAL GUIDANCE SERIES (TOGS) 1.1.1 AMBIENT WATER QUALITY STANDARDS (AWQS)
3. ALL RESULTS SHADED GRAY EXCEED THE NYSDEC AWQS.
4. RESULTS ARE DISPLAYED IN MICROGRAMS PER LITER (ug/L).
5. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
6. AERIAL IMAGERY SOURCE: NEARMAP, 27 SEPTEMBER 2022

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SCALE IN FEET

HALEY ALDRICH

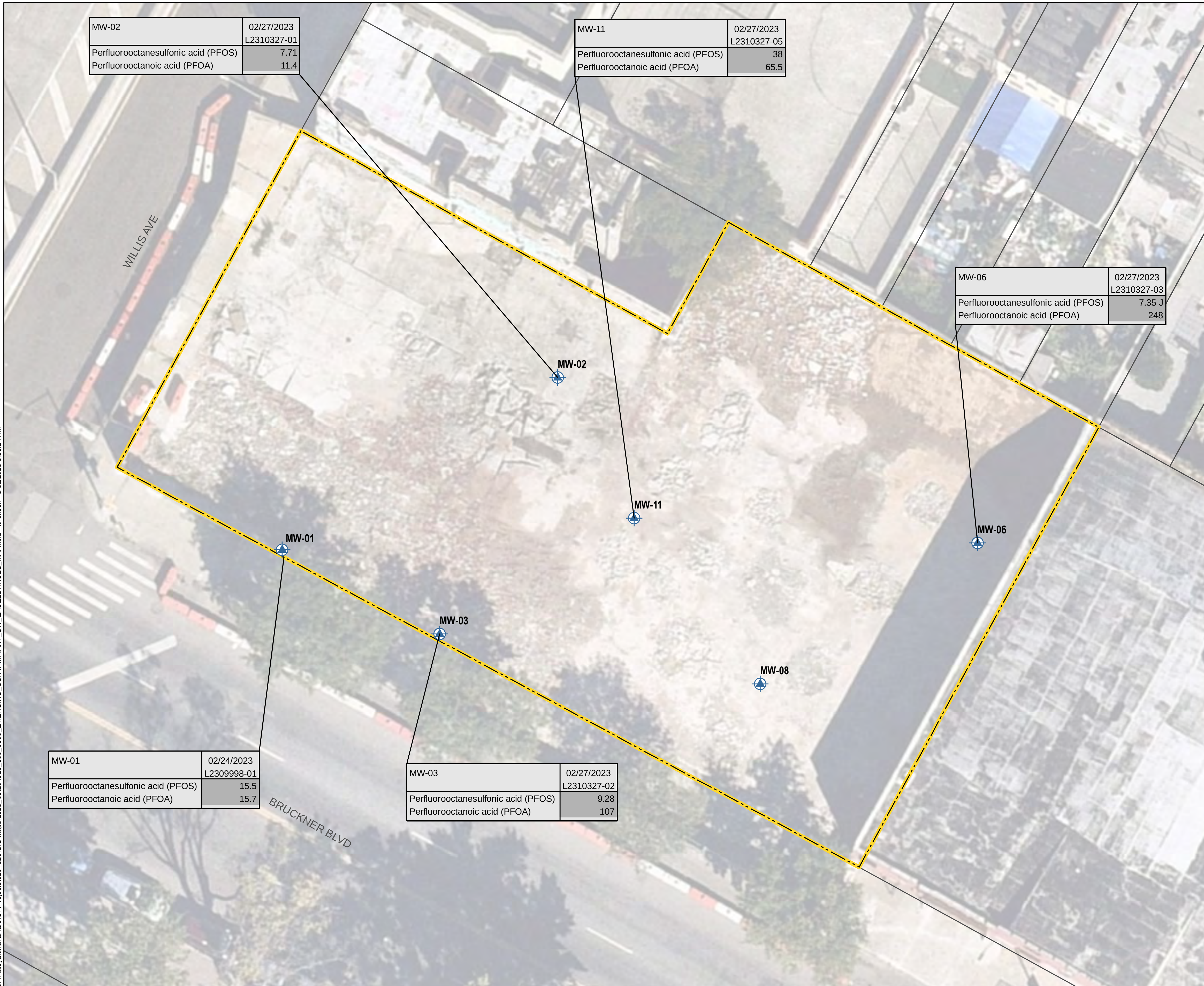
91 BRUCKNER BOULEVARD
BRONX, NEW YORK

GROUNDWATER RESULTS EXCEEDANCES MAP

MARCH 2023

FIGURE 7

GIS:\\haleyaldrich\share\CF\Projects\0204520\GIS\Maps\2023_03\204520_000_0000_GROUNDWATER_EXCEEDANCES_MAP.mxd - khensen - 4/6/2023 4:57:32 AM



LEGEND

- MONITORING WELL
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. GROUNDWATER SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE FEBRUARY 2023 NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) NEW YORK STATE AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES.
3. RESULTS ARE DISPLAYED IN NANOGRAMS PER LITER (ng/L).
4. EXCEEDANCES OF 6.7 ng/L FOR PFOA AND 2.7 ng/L FOR PFOS SHOWN ON FIGURE.
5. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
6. AERIAL IMAGERY SOURCE: NEARMAP, 27 SEPTEMBER 2022

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SCALE IN FEET

HALEY ALDRICH

91 BRUCKNER BOULEVARD
BRONX, NEW YORK

EMERGING CONTAMINANT GROUNDWATER EXCEEDANCES MAP

MARCH 2023

FIGURE 8

GIS:\\haleyaldrich\share\CF\Projects\0204520\GIS\Maps\2023_03\204520_000_0000_EMERGING_CONTAMINANT_GW_EXCEEDANCES_MAP.mxd - khensen - 3/31/2023 5:50:14 AM

SV-02	02/15/2023 L2308185-04
VOCs	
1,2,4-Trimethylbenzene	51.6
1,3,5-Trimethylbenzene	12.8
2-Butanone (Methyl Ethyl Ketone)	79.9
2-Hexanone (Methyl Butyl Ketone)	18.8
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	14.9
Acetone	2570
Benzene	19.9
Carbon disulfide	1.19
Chloromethane (Methyl Chloride)	1.11
Cyclohexane	4.72
Dichlorodifluoromethane (CFC-12)	2.22
Ethanol	48.4
Ethylbenzene	40.6
Hexane	25.9
Isopropyl Alcohol (2-Propanol)	7.94
m,p-Xylenes	129
N-Heptane	28.7
o-Xylene	42.6
Styrene	2.92
Tert-Butyl Alcohol (tert-Butanol)	9.82
Tetrachloroethene	27
Tetrahydrofuran	3.63
Toluene	241
Calculated Totals	
Total BTEXs	473.1
Total VOCs	3384.65

SV-11	02/15/2023 L2308185-07
VOCs	
1,2,4-Trimethylbenzene	56.5
1,3,5-Trimethylbenzene	14.9
1,3-Butadiene	0.759
2,2,4-Trimethylpentane	3.38
2-Butanone (Methyl Ethyl Ketone)	61.1
2-Hexanone (Methyl Butyl Ketone)	15.4
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	14.9
Acetone	2590
Benzene	20.6
Carbon disulfide	1.44
Chloroform (Trichloromethane)	1.36
Chloromethane (Methyl Chloride)	0.712
Cyclohexane	4.96
Dichlorodifluoromethane (CFC-12)	2.2
Ethanol	36
Ethylbenzene	47.8
Hexane	26.1
Isopropyl Alcohol (2-Propanol)	7.01
m,p-Xylenes	151
Methylene chloride (Dichloromethane)	2.33
N-Heptane	30.6
o-Xylene	50.4
Styrene	4.09
Tert-Butyl Alcohol (tert-Butanol)	7.28
Tetrachloroethene	30.2
Tetrahydrofuran	3.6
Toluene	264
Trichlorofluoromethane (CFC-11)	22
Calculated Totals	
Total BTEXs	533.8
Total VOCs	3470.621

SV-05	02/15/2023 L2308185-06
VOCs	
1,1,1-Trichloroethane	5.78
1,2,4-Trimethylbenzene	2190
1,3,5-Trimethylbenzene	541
1,3-Butadiene	2.68
2,2,4-Trimethylpentane	3.77
2-Butanone (Methyl Ethyl Ketone)	169
2-Hexanone (Methyl Butyl Ketone)	61.9
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	457
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	21.6
Acetone	2170
Benzene	4.28
Cyclohexane	5.06
Dichlorodifluoromethane (CFC-12)	3.21
Ethanol	60.3
Ethylbenzene	357
Hexane	11.9
Isopropyl Alcohol (2-Propanol)	12.8
m,p-Xylenes	1460
N-Heptane	31.5
o-Xylene	838
Tert-Butyl Alcohol (tert-Butanol)	10.2
Tetrachloroethene	51.9
Toluene	219
Trichlorofluoromethane (CFC-11)	97.2
Calculated Totals	
Total BTEXs	2878.28
Total VOCs	8785.08

SV-07	02/16/2023 L2308482-02
VOCs	
1,2,4-Trimethylbenzene	84.6
1,3,5-Trimethylbenzene	22.8
1,3-Butadiene	53.3
2-Butanone (Methyl Ethyl Ketone)	56.3
2-Hexanone (Methyl Butyl Ketone)	3.5
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	20.5
Acetone	3610
Benzene	27.9
Chloromethane (Methyl Chloride)	3.37
Cyclohexane	7.99
Ethanol	67.6
Ethylbenzene	73.4
Hexane	49
Isopropyl Alcohol (2-Propanol)	25.6
m,p-Xylenes	243
N-Heptane	42.6
o-Xylene	87.7
Styrene	4.81
Tetrachloroethene	232
Tetrahydrofuran	6.64
Toluene	353
Trichlorofluoromethane (CFC-11)	155
Calculated Totals	
Total BTEXs	785
Total VOCs	5230.61

SV-06	02/16/2023 L2308482-01
VOCs	
1,2,4-Trimethylbenzene	58
1,3,5-Trimethylbenzene	15.3
1,3-Butadiene	41.6
2-Butanone (Methyl Ethyl Ketone)	50.7
2-Hexanone (Methyl Butyl Ketone)	4.63
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	14.5
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	3.8
Acetone	957
Benzene	22
Carbon disulfide	7.22
Chloroethane	1.23
Chloroform (Trichloromethane)	2
Chloromethane (Methyl Chloride)	1.05
Cyclohexane	12.7
Dichlorodifluoromethane (CFC-12)	2.2
Ethanol	18.4
Ethylbenzene	48.2
Hexane	95.9
Isopropyl Alcohol (2-Propanol)	3.83
m,p-Xylenes	152
Methylene chloride (Dichloromethane)	14
N-Heptane	52.5
o-Xylene	51.7
Styrene	4.98
Tetrachloroethene	21.5
Tetrahydrofuran	4.01
Toluene	268
Trichlorofluoromethane (CFC-11)	4.21
Vinyl chloride	2.39
Calculated Totals	
Total BTEXs	541.9
Total VOCs	1935.55

SV-09	02/16/2023 L2308482-04
VOCs	
1,2,4-Trimethylbenzene	94.4
1,3,5-Trimethylbenzene	22
1,3-Butadiene	28.3
2-Butanone (Methyl Ethyl Ketone)	60.2
2-Hexanone (Methyl Butyl Ketone)	3.33
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	24.7
Acetone	3440
Benzene	25.1
Carbon disulfide	3.15
Chloromethane (Methyl Chloride)	5.27
Cyclohexane	8.74
Ethanol	63.3
Ethylbenzene	63.9
Hexane	51.5
Isopropyl Alcohol (2-Propanol)	20
m,p-Xylenes	209
N-Heptane	42.2
o-Xylene	72.1
Styrene	5.45
Tetrachloroethene	45.8
Tetrahydrofuran	8.55
Toluene	368
Calculated Totals	
Total BTEXs	738.1
Total VOCs	4664.99

SV-01	02/15/2023 L2308185-03
VOCs	
1,2,4-Trimethylbenzene	61
1,3,5-Trimethylbenzene	15.6
1,3-Butadiene	1.13
2-Butanone (Methyl Ethyl Ketone)	47.8
2-Hexanone (Methyl Butyl Ketone)	13.4
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	14.7
Acetone	829
Benzene	18.3
Carbon disulfide	5.89
Chloroform (Trichloromethane)	23.6
Cyclohexane	3.86
Dichlorodifluoromethane (CFC-12)	2.31
Ethanol	23.4
Ethylbenzene	47.8
Hexane	18.3
Isopropyl Alcohol (2-Propanol)	3.42
m,p-Xylenes	151
N-Heptane	26.1
o-Xylene	50.8
Styrene	3.5
Tert-Butyl Alcohol (tert-Butanol)	3.82
Tetrachloroethene	23.5
Tetrahydrofuran	2.9
Toluene	242
Trichlorofluoromethane (CFC-11)	1.33
Calculated Totals	
Total BTEXs	509.9
Total VOCs	1634.46

SV-03	02/15/2023 L2308185-05
VOCs	
1,2,4-Trimethylbenzene	58
1,3,5-Trimethylbenzene	15.3
2,2,4-Trimethylpentane	2.23
2-Butanone (Methyl Ethyl Ketone)	72
2-Hexanone (Methyl Butyl Ketone)	18.6
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	17
Acetone	2380
Benzene	17
Carbon disulfide	1.59
Cyclohexane	3.68
Dichlorodifluoromethane (CFC-12)	2.23
Ethanol	23.9
Ethylbenzene	50
Hexane	18.6
Isopropyl Alcohol (2-Propanol)	4.67
m,p-Xylenes	157
Methylene chloride (Dichloromethane)	2.28
N-Heptane	27.8
o-Xylene	51.7
Styrene	4.34
Tert-Butyl Alcohol (tert-Butanol)	6.12
Tetrachloroethene	24.5
Tetrahydrofuran	2.83
Toluene	277
Trichlorofluoromethane (CFC-11)	2.15
Calculated Totals	
Total BTEXs	552.7
Total VOCs	3240.52

SV-04	02/15/2023 L2308185-02
VOCs	
1,1,1-Trichloroethane	3
1,2,4-Trimethylbenzene	831
1,3,5-Trimethylbenzene	259
1,3-Butadiene	3.67
2-Butanone (Methyl Ethyl Ketone)	27
2-Hexanone (Methyl Butyl Ketone)	20.1
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	267
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	6.68
Acetone	834
Benzene	1.87
Carbon disulfide	1.6
Chloroform (Trichloromethane)	8.55
Cyclohexane	1.88
Dichlorodifluoromethane (CFC-12)	2.28
Ethanol	17
Ethylbenzene	282
Hexane	2.54
Isopropyl Alcohol (2-Propanol)	5.31
m,p-Xylenes	1110
N-Heptane	15.7
o-Xylene	582
Styrene	1.7
Tert-Butyl Alcohol (tert-Butanol)	2.94
Tetrachloroethene	30.7
Toluene	171
Trichlorofluoromethane (CFC-11)	10.1
Calculated Totals	
Total BTEXs	2146.87
Total VOCs	4498.62

SV-08	02/16/2023 L2308482-03
VOCs	
1,2,4-Trimethylbenzene	59
1,3,5-Trimethylbenzene	15.5
1,3-Butadiene	4.36
2-Butanone (Methyl Ethyl Ketone)	54.9
2-Hexanone (Methyl Butyl Ketone)	4.06
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	14.2
Acetone	2780
Benzene	18.7
Cyclohexane	4.75
Ethanol	46
Ethylbenzene	53.4
Hexane	25.8
Isopropyl Alcohol (2-Propanol)	11.6
m,p-Xylenes	175
N-Heptane	29
o-Xylene	58.6
Styrene	4.98
Tetrachloroethene	86.1
Toluene	301
Trichlorofluoromethane (CFC-11)	82
Calculated Totals	
Total BTEXs	606.7
Total VOCs	3828.95

SV-10	02/15/2023 L2308185-01
VOCs	
1,2,4-Trimethylbenzene	757
1,3,5-Trimethylbenzene	234
1,3-Butadiene	39.6
2-Butanone (Methyl Ethyl Ketone)	41
2-Hexanone (Methyl Butyl Ketone)	28
4-Ethyltoluene (1-Ethyl-4-Methylbenzene)	200
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	10.2
Acetone	760
Benzene	13.4
Carbon disulfide	34.9
Chloroethane	1.16
Chloroform (Trichloromethane)	4.81
Chloromethane (Methyl Chloride)	4.58
Cyclohexane	12.8
Dichlorodifluoromethane (CFC-12)	2.35
Ethanol	19.2
Ethylbenzene	287
Hexane	42.3
Isopropyl Alcohol (2-Propanol)	5.16
m,p-Xylenes	1090
N-Heptane	42.6
o-Xylene	569
Styrene	1.66
Tetrachloroethene	14.2
Toluene	210
Trichlorofluoromethane (CFC-11)	6.07
Vinyl chloride	1.72
Calculated Totals	
Total BTEXs	2169.4
Total VOCs	4432.71

LEGEND

- SOIL VAPOR PROBE
- SITE BOUNDARY
- PARCEL BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ALL DETECTED ANALYTES SHOWN ON FIGURE.
3. SOIL VAPOR ANALYSIS - VOLATILE ORGANIC COMPOUNDS (VOCs)
4. RESULTS ARE DISPLAYED IN MICROGRAMS PER CUBIC METER (µg/m3)
5. TOTAL BTEX IS THE SUM OF ALL THE DETECTED BENZENE, TOLUENE, EHTYLBENZENE AND XYLENES (BTEX).
6. TOTAL VOCs IS THE SUM OF ALL THE DECTECTED CONCENTRATIONS.
7. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
8. AERIAL IMAGERY SOURCE: NEARMAP, 27 SEPTEMBER 2022

N

0 20 40 60 80

SCALE IN FEET

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91 BRUCKNER BOULEVARD
BRONX, NEW YORK

SOIL VAPOR RESULTS MAP

MARCH 2023

FIGURE 9

GIS FILE PATH: \\haleyaldrich\share\CF\Projects\0204520\GIS\Maps\2023_03\204520_000_0000_SOIL_VAPOR_RESULTS_MAP.mxd - khensen - 3/31/2023 5:32:56 AM

APPENDIX A
Remedial Investigation Work Plan

www.haleyaldrich.com

REMEDIAL INVESTIGATION WORK PLAN
FORMER FIEDLER WATERPROOFING & MASONRY SITE
NYSDEC BCP SITE C203160
BRONX, NEW YORK

by Haley & Aldrich of New York
New York, New York

for
91 Bruckner Blvd LLC
162 Manhattan Avenue, 1st Floor
Brooklyn, New York 11206

File No. 0204520
January 2023

Certification

I, Mari C. Conlon, certify that I am currently a Qualified Environmental Professional as defined in 6 NYCRR Part 375 and that this Remedial Investigation Work Plan was prepared in accordance with the applicable statues and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Mari Cate Conlon	*13 January 2023*
Mari C. Conlon	*Date*

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1. Introduction

On behalf of the Applicant, 91 Bruckner Blvd LLC, Haley & Aldrich of New York (Haley & Aldrich) has prepared this Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site, BCP Site C203160, located at 91 Bruckner Boulevard (see Figure 1) in the Bronx, New York (Site). This RIWP was prepared in accordance with the regulations and guidance applicable to the BCP.

The Site is located in the Mott Haven neighborhood of the Bronx and is identified as Block 2278 Lot 1 on the New York City tax map. The Site is a vacant approximately 14,500 square-foot lot bound by mixed-use and residential properties to the north, a warehouse designated as parking to the west, Bruckner Boulevard followed by Pulaski Park to the south, and Willis Avenue followed by a commercial restaurant to the west.

The Site is currently located within a residential and manufacturing (R6A/M1-2) zoning district, part of a Special Mixed-Use (MX-1) district. The Site is located in a mixed-use area characterized by warehouses, open space, commercial, industrial and residential buildings and is served by municipal water and sewer.

A site location map is provided as Figure 1 and a site plan showing the property boundaries and adjacent properties is provided as Figure 2.

We understand that 91 Bruckner Blvd LLC plans to redevelop the Site with a 7-story residential building encompassing the entire site footprint (including 421-a affordable housing) which is consistent with current zoning. The new development is anticipated to include a one level cellar requiring excavation extending to approximately 12 feet below ground surface (ft bgs).

1.1 PURPOSE

Previous environmental investigations conducted at the Site identified the presence of elevated concentrations of semi-volatile organic compounds (SVOCs) and metals in soil at the Site. In addition, the previous investigations detected chlorinated volatile organic compounds (CVOCs) in soil vapor at concentrations potentially indicating source material contamination which has not been identified to date. These findings will require additional investigation to ascertain and delineate any on-Site source(s).

Previous investigations did not comprehensively delineate the extent of soil and soil vapor contamination on the Site. Results of the additional sample analyses proposed in this RIWP will be used to confirm the results of the previous Site characterization activities, address data gaps, delineate any on-site source(s), and determine a course for remedial action.

2. Background

2.1 CURRENT LAND USE

Currently, the Site is a vacant and undeveloped lot. The Site, currently at grade with the surrounding area, is capped with the former concrete building slab. The Site is located within a mixed-use area characterized by multi-story commercial and residential buildings and industrial-use buildings. The Site is currently owned by 91 Bruckner Blvd LLC, which is a New York State Domestic Limited Liability Corporation. 91 Bruckner Blvd LLC plans to develop the Site with a 7-story residential building with a cellar, consistent with current zoning.

2.2 SITE HISTORY

Based on a Phase I Environmental Site Assessment (ESA) completed by P.W. Grosser Consulting. Inc. (PWGC) for the Site in September 2021, the Site was developed in the early 1900s with two 5-story dwellings with storefronts on the western portion of the Site, while the eastern portion of the Site remained vacant. The Site was listed as an alcohol denaturing plant in the 1927 city directory. By the mid-1930s, the eastern portion of the Site began to be utilized as a “Universal Car Loading Freight Station” and an additional store was developed on the southwest corner of the Site. By the mid-1940s, the “Universal Car Loading Freight Station” was no longer in use and this portion of the Site began to be utilized for wine storage and bottling. The Site remained relatively unchanged until the early 1950s when the portion of the building utilized for wine storage and bottling began to be utilized as a garage. Three gasoline tanks of unknown capacity were identified on the Sanborn Fire Insurance Maps on the southeastern portion of the Site from 1951 to 2007. Since the 1970s, Fiedler Waterproofing and Masonry Company began operating at the Site and continued operations through the early 2000s. In the early 1980s, the three storefronts were demolished and redeveloped with a one-story building in 1985. The one-story warehouse previously encompassing the Site was razed in 2022.

2.3 SURROUNDING LAND USE

The Site is located along Bruckner Boulevard between Willis Avenue and Brown Place in an urban area identified as the Mott Haven neighborhood in the Borough of The Bronx. There are four sensitive receptors within a 500 ft radius of the Site listed below and shown in Figure 3:

1) Pulaski Park, Bruckner Boulevard & Willis Avenue, Bronx, New York, 10454, listed as a public park.
2) Learning Through Play Pre-K Center, 105 Willis Avenue, Bronx, New York, 10454, listed as a school.
3) Bruckner Forever Young Social Adult Day Care, 80 Bruckner Boulevard, Bronx, NY, 10454, listed as an adult day care.
4) Ranaqua Playground, 452 E 136th Street, Bronx, New York, 10454, listed as a public playground.

Properties immediately surrounding the Site are zoned for mixed residential commercial land use.

2.4 SURROUNDING LAND USE HISTORY

The area surrounding the Site has been used primarily for manufacturing, commercial, residential, and auto-related uses from the early 1900s through the present day.

2.5 PREVIOUS INVESTIGATIONS

To date the following investigations have been performed at the Site:

1. September 2021 Phase I Environmental Site Assessment Prepared by P.W. Grosser Consulting Inc.
2. October 2021 Phase II Environmental Site Assessment Prepared by P.W. Grosser Consulting Inc.
3. March 2022 Limited Phase II Environmental Site Investigation Prepared by Haley & Aldrich of New York

Full investigation findings are included in Appendix A. A summary of environmental findings of these investigations is provided below.

September 2021 Phase I Environmental Site Assessment
Prepared by P.W. Grosser Consulting Inc.
A Phase I ESA was performed by PWGC in September 2021 for the purpose of identifying Recognized Environmental Conditions (RECs) in connection with the Site.

The Phase I identified the following RECs at the Site:

- The Site formerly operated as an alcohol denaturing plant and is listed as such in the 1927 city directory.
- The Site was formerly utilized as a private garage since at least 1951. Three gasoline tanks of unknown capacity were identified on Sanborn maps from 1951 through 2007. During a Site walk, no evidence of the presence of tanks was observed, however, no closure documentation is available.
- The Site is listed in the LTANKS database and there are two closed NYSDEC spill cases (1008706 and 0511553) at the Site associated with a closed-in-place UST. The spill cases were reported due to tank tightness failures of the same UST at the Site. The USTs were reportedly abandoned in place and replaced with two 275-gallon aboveground storage tanks (ASTs). A tank abandonment report stated that the USTs were purged, cut open, and cleaned out, then filled with sand and concrete. Confirmation soil samples were collected and indicated that there were no exceedances of soil cleanup standards. The LTANKS listing is considered a historical recognized environmental condition (HREC).
- NYSDEC Spill Incident 1400544 – A NYSDEC Spill incident was reported at the east adjacent property, 95 Bruckner Boulevard on 16 April 2014 due to light fuel oil encountered in soil in an excavation in the road in front of the property. Approximately 78 yards of impacted soil was removed, and the spill case was closed on 15 May 2014. This is considered a REC since impacted soil was not delineated and residual contamination may be present.

October 2021 Phase II Environmental Site Assessment
Prepared by PWGC
PWGC completed a geophysical survey of the Site to determine the presence of any subsurface anomalies. During the geophysical survey, PWGC and Advanced Geological Services, Inc (AGS) identified the previously closed in place UST within the partial basement, as well as a prior excavation in the eastern warehouse. AGS did not identify any other anomalies or USTs at the Site. Following the survey, PWGC collected soil and soil vapor samples at the Site to investigate soil quality beneath the Site and evaluate the potential for vapor intrusion. Historic fill material was observed from surface grade to approximately 5 to 8 ft bgs, followed by silty sands with gravel to the terminal depth of each soil boring. Odors were not

observed, and the photoionization detector (PID) readings ranged from 0.0 parts per million (ppm) to 1.6 ppm throughout the boring intervals. Refusal/bedrock was encountered at approximately 13 to 15 ft bgs. Groundwater was not encountered.

Field observations and analytical results identified shallow soil impacted with heavy metals and SVOCs at concentrations consistent with characteristics of urban fill found throughout the New York City area. SVOCs exceeding UUSCOs were detected in one shallow soil boring (SB002[0-2']). Additionally, total metals were observed widely distributed throughout the Site in urban fill, from the surface to a maximum depth of 8 ft bgs.

March 2022 Limited Phase II Environmental Site Investigation Report
Prepared by Haley & Aldrich of New York

Haley & Aldrich completed a limited sampling event at the Site to investigate soil and soil vapor quality at the Site. Urban fill generally consisted of brown to dark brown to light gray sand with varying amounts of gravel, brick, asphalt, glass, ceramic, and silt from surface grade to approximately 5 to 15 ft bgs in each soil boring. The urban fill layer was underlain by brown to light brown sand with varying amounts of silt, gravel, and intermittent clay lenses (clay observed in HA-05 only). Soil samples were collected continuously, characterized, and screened for visual and olfactory evidence of contamination such as staining and odors. Instrumental screening for the presence of organic vapors was performed using a PID. No apparent subsurface impacts were observed, including odors and staining, and PID readings of non-detect at 0.0 ppm were recorded. Groundwater was not encountered, and therefore not included as part of this investigation.

Field observations and analytical results identified historical urban fill contaminated with heavy metals and SVOCs (specifically polycyclic aromatic hydrocarbons [PAHs]) at concentrations consistent with characteristics of urban fill found throughout the New York City area. SVOCs and total metals exceeding RRSCOs were observed widely distributed throughout the Site in urban fill, up to 10 ft bgs. A lead hotspot was identified in soil collected from boring HA-06 from immediately below the concrete slab to a depth of 2 ft bgs in the north-central region of the Site. Sub-slab soil vapor is impacted with chlorinated VOCs; specifically, PCE which was identified in one soil vapor sample in the southeast region of the Site.

Haley & Aldrich concluded that further delineation may be required to determine the extent of hazardous lead in soils in the north-central region of the Site. Considering PCE was identified in Site soil and soil vapor, an on-site source may exist.

3. Remedial Investigation

This section describes the field activities to be conducted during the RI and provides the sampling scope, objectives, methods, anticipated number of samples, and sample locations. A summary of the sampling and analysis plan is provided in Table 1 and Figure 2. The following activities will be conducted to fill data gaps and determine the nature and extent of contamination at the Site.

3.1 UTILITY MARKOUT

A geophysical survey was performed by AGS on 8 October 2021 to determine the presence of subsurface anomalies. During the geophysical survey, AGS identified the previously closed in place UST within the partial basement, as well as a prior excavation in the eastern warehouse. AGS did not identify other anomalies or USTs at the subject property. Additionally, a total of three proposed drilling locations comprising PWGC's Limited Phase II Environmental Site Assessment were surveyed to identify potential underground utilities or other drilling hazards. A minimum of 10 feet radially surrounding each proposed drilling location was investigated, space permitting, for the presence of underground utilities or other identifiable potential drilling hazards.

The geophysical survey findings, reports, and approximate locations of the anomalies are presented in Appendix C. The findings report, provided by AGS, dated 10 October 2021, is provided as Appendix C.

3.2 SOIL SAMPLING

To further characterize subsurface soil conditions, additional on-site soil samples will be collected to meet NYSDEC DER-10 requirements for remedial investigations. The sampling and analysis plan is summarized in Table 1.

A total of 14 soil borings will be installed to 15 ft bgs by a track-mounted direct-push drill rig (Geoprobe®) operated by a licensed operator. Soil samples will be collected from acetate liners using a stainless-steel trowel or sampling spoon. Samples will be collected using laboratory provided clean bottle ware. VOC grab samples will be collected using terra cores or encores.

Soils will be logged continuously by a geologist or engineer using the Modified Burmister Soil Classification System. The presence of staining, odors, and photoionization detector (PID) response will be noted. Sampling methods are described in the Field Sampling Plan (FSP) provided as Appendix B. A Quality Assurance Project Plan (QAPP) is provided as Appendix D. Laboratory data will be reported in ASP Category B deliverable format.

Soil samples representative of Site conditions will be collected at 14 locations widely distributed across the Site, as shown in Figure 2. Samples will be collected from the surface at 0 to 0.5 ft bgs, 6 to 8 ft bgs and 12 to 14 ft bgs. Additional samples will be collected from any interval exhibiting elevated PID readings or visual and olfactory impacts. Soil samples will be analyzed for:

- Target Compound List (TCL) VOCs using EPA method 8260B

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- TCL SVOCs using EPA method 8270C
- Total Analyte List (TAL) Metals using EPA method 6010
- TCL Pesticides using EPA method 8081B
- PCBs using EPA method 8082
- Per- and polyfluoroalkyl substances (PFAS) by EPA Method 1633
- 1,4-dioxane by EPA Method 8270

Samples to be analyzed for PFAS and 1,4-dioxane will be collected and analyzed in accordance with the Sampling for “1,4-dioxane and Per- and Polyfluoroalkyl Substances (PFAS) Under DECs Part 375 Remedial Programs,” respectively.

Soil analytical results will be compared to NYSDEC 6NYCRR Part 375 Unrestricted Use Soil Cleanup Objectives (UUSCOs) and Restricted Residential Use SCOs (RRSCOs).

Additionally, soil samples will be collected in the north-central region of the Site at the area of former soil boring HA-06 as well as 8 locations in the vicinity to delineate the extent of elevated concentrations of lead identified at this location in the March 2022 Limited Phase II ESI. From former soil boring HA-06, 5-foot step out borings will be performed in each direction with samples collected from the surface at 0 to 2 ft bgs, 2 to 4 ft bgs, and 4 to 6 feet bgs. Lead delineation soil samples will be analyzed for:

- Total lead using EPA method 6020A
- Toxicity Characteristic Leaching Procedure (TCLP) lead

3.3 GROUNDWATER SAMPLING

The purpose of the groundwater sampling is to obtain current groundwater data and analyze for additional parameters (i.e., per- and polyfluoroalkyl substances [PFAS] and 1,4-dioxane) to meet NYSDEC DER-10 requirements for remedial investigations.

Seven two-inch permanent monitoring wells will be installed to approximately 25 ft bgs or to at least five feet below the groundwater interface (if encountered at a shallower depth). Monitoring wells will have a 2-inch annular space and be installed using either #0 or #00 certified clean sand fill. Wells will be screened from approximately 15 to 25 ft bgs and screen will straddle the groundwater interface. Monitoring wells will be developed after installation by surging a pump in the well several times to pull fine-grained material from the well. Development will be completed until the water turbidity is 50 nephelometric turbidity units (NTU) or less or ten well volumes are removed, if possible. Groundwater sampling will occur at a minimum of one week after monitoring well development. The well casings will be surveyed by a New York State licensed surveyor and gauged during a round of synoptic groundwater depth readings to facilitate the preparation of a groundwater contour map and to determine the direction of groundwater flow.

The sampling and analysis plan is summarized in Table 1. Proposed monitoring well locations are provided in Figure 2.

Monitoring wells will be sampled and analyzed for:

- TCL VOCs using EPA method 8260B;
- TCL SVOCs using EPA method 8270C;
- Total Metals using EPA methods 6010/7471;
- Dissolved Metals using EPA methods 6010/7471;
- TCL Pesticides using EPA method 8081B;
- PCBs using EPA method 8082
- PFAS using EPA method 1633; and
- 1,4-Dioxane using EPA method 8270 SIM.

Samples to be analyzed for PFAS and 1,4-dioxane will be collected and analyzed in accordance with the NYSDEC issued November 2022 "Sampling, Analysis and Assessment of PFAS" and the November 2022 Sampling for "1,4-dioxane and Per- and Polyfluoroalkyl Substances (PFAS) Under DECs Part 375 Remedial Programs," respectively.

Groundwater wells will be sampled using low-flow sampling methods described in the Field Sampling Plan (FSP). Following the low-flow purge, samples will be collected from monitoring wells for analysis of the analytes mentioned above.

The FSP presented in Appendix B details field procedures and protocols that will be followed during field activities. The QAPP presented in Appendix D details the analytical methods and procedures that will be used to analyze samples collected during field activities. All monitoring wells will be sampled for PFAS following the purge and sampling method detailed in the NYSDEC guidance documents (see Appendix E).

Groundwater analytical results will be compared to 6NYCRR Part 703.5 NYSDEC Technical and Operational Guidance Series 1.1.1 Ambient Water Quality Standards and Guidance Values (AWQS).

3.4 INVESTIGATION DERIVED WASTE

Following sample collection, boreholes that are not converted to monitoring wells will be backfilled with soil cuttings that do not exhibit gross contamination and an upper bentonite plug. Boreholes will be restored to grade with the surrounding area. Soil cuttings identified as grossly contaminated will be separated and placed into a sealed and labeled Department of Transportation (DOT) approved 55-gallon drum pending characterization and off-Site disposal. Groundwater purged from the monitoring wells during development and sample collection will be placed into a DOT approved 55-gallon drum pending off-Site disposal.

3.5 SOIL VAPOR SAMPLING

Samples will be collected in accordance with the New York State Department of Health (NYSDOH) Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (NYSDOH October 2006). Eleven soil vapor probes will be installed to approximately 12 to 14 ft bgs. The vapor implants will be installed with a direct-push drilling rig (e.g., Geoprobe®) to advance a stainless-steel probe to the desired sample depth. Sampling will occur for the duration of two hours.

Samples will be collected in appropriately sized Summa® canisters that have been certified clean by the laboratory, and samples will be analyzed by using United States Environmental Protection Agency (USEPA) Method TO-15. Flow rate for both purging and sampling will not exceed 0.2 L/min. Sampling methods are described in the Field Sampling Plan (FSP) provided as Appendix B.

3.6 PROPOSED SAMPLING RATIONALE

Haley & Aldrich has proposed the sample plan described herein and as shown in Figure 2, in consideration of the data generated during the previous investigations conducted at the Site. Environmental investigations were performed from September 2021 through March 2022 to investigate the Site's environmental history and assess soil and soil vapor quality at the Site. An October 2021 Phase II ESA and a March 2022 Limited Phase II ESI revealed elevated SVOC and metal concentrations in soil samples collected at the Site. The sampling map from the March 2022 Phase II Limited ESI (included in Appendix A) shows data gaps throughout the Site, including a lack of analytical data for potentially high-risk areas that may have been impacted during historical Site operations. In order to properly characterize the Site and identify potential source areas, all phases of media will be comprehensively investigated as part of this RI and data gaps will be evaluated.

In addition, the Site investigations detected CVOCs in soil vapor at concentrations indicating potential source material contamination which has not been identified to date.

The Proposed Sample Location Map (included as Figure 2) is designed to generate sufficient data to identify the source of contamination and classify subsurface conditions throughout the Site as a whole, with a particular focus on sample locations in areas of the Site that have historically revealed evidence of contamination.

4. Quality Assurance and Quality Control

Quality Assurance/Quality Control (QA/QC) procedures will be used to provide performance information with regard to the accuracy, precision, sensitivity, representation, completeness, and comparability associated with the sampling and analysis for this investigation. Field QA/QC procedures will be used (1) to document that samples are representative of actual conditions at the Site and (2) identify possible cross-contamination from field activities or sample transit. Laboratory QA/QC procedures and analyses will be used to demonstrate whether analytical results have been biased either by interfering compounds in the sample matrix or by laboratory techniques that may have introduced systematic or random errors to the analytical process.

QA/QC procedures are defined in the QAPP included in Appendix D.

5. Data Use

5.1 DATA SUBMITTAL

Analytical data will be supplied in ASP Category B Data Packages. If more stringent than those suggested by the United States Environmental Protection Agency, the laboratory's in-house QA/QC limits will be utilized. Validated data will be submitted to the NYSDEC EQuIS database in an EDD package.

5.2 DATA VALIDATION

Data packages will be sent to a qualified data validation specialist to evaluate the accuracy and precision of the analytical results. A Data Usability Summary Report (DUSR) will be created to confirm the compliance of methods with the protocols described in the NYSDEC Analytical service Protocol (ASP). DUSRs will summarize and confirm the usability of the data for project-related decisions. Data validation will be completed in accordance with the DUSR guidelines from the NYSDEC Division of Environmental Remediation. DUSRs will be included with the submittal of a Remedial Investigation Report (RIR), further discussed in Section 8.

6. Project Organization

A project team for the Site has been created based on qualifications and experience with personnel suited for successfully completing the project.

The NYSDEC designated Case Manager, Ronnie Lee, will be responsible for overseeing the successful completion of the project work and adherence to the work plan on behalf of NYSDEC.

The NYSDOH designated Case Manager, Christopher Budd, will be responsible for overseeing the successful completion of the project work and adherence to the work plan on behalf of NYSDOH.

James Bellew will be the Qualified Environmental Professional (QEP) and Principal in Charge for this work. In this role, Mr. Bellew will be responsible for the overall completion of each task as per requirements outlined in this work plan and in accordance with the DER-10 guidance.

Mari Conlon, P.G. will be the Project Manager for this work. In this role, Ms. Conlon will manage the day-to-day tasks including coordination and supervision of field engineers and scientists, adherence to the work plan and oversight of project schedule. As the Project Manager, Ms. Conlon will also be responsible for communications with the NYSDEC Case Manager regarding project status, schedule, issues, and updates for project work.

Elizabeth Scheuerman. will be the Assistant Project Manager for this work and will also act as the Quality Assurance Officer (QAO). The QAO will assure the application and effectiveness of the QAPP by the analytical laboratory and the project staff, provide input to field team as to corrective actions that may be required as a result of the above-mentioned evaluations and prepare and/or review data validation and audit reports.

PJ DiNardo will be the field engineer responsible for implementing the field effort for this work. Mr. DiNardo's responsibilities will include implementing the work plan activities and directing the subcontractors to ensure successful completion of all field activities.

The drilling subcontractor will be Lakewood Environmental. Lakewood Environmental will provide a Geoprobe operator to implement the scope of work in this RIWP.

The analytical laboratory will be Alpha Analytical of Westborough, MA, a New York Environmental Laboratory Approval Program (ELAP) certified laboratory. Alpha Analytical will be responsible for analyzing samples as per the analyses and methods identified in Section 2.

7. Health and Safety

7.1 HEALTH AND SAFETY PLAN

A Site-specific Health and Safety Plan (HASP) has been prepared in accordance with NYSDEC and NYSDOH guidelines and is provided as Appendix F of this work plan. The HASP includes a description of health and safety protocols to be followed by Haley & Aldrich field staff during implementation of the remedy, including monitoring within the work area, along with response actions should impacts be observed. The HASP has been developed in accordance with Occupational Health and Safety Administration (OSHA) 40 CFR Part 1910.120 regulatory requirements for use by Haley & Aldrich field staff that will work at the Site during planned activities. Contractors or other personnel who perform work at the Site are required to develop their own health and safety plan and procedures of comparable or higher content for their respective personnel in accordance with relevant OSHA regulatory requirements for work at hazardous waste sites as well as the general industry as applicable based on the nature of work being performed.

7.2 COMMUNITY AIR MONITORING PLAN

The proposed investigation work will be completed outdoors at the Site. Where intrusive drilling operations are planned, community air monitoring will be implemented to protect downwind receptors. A Haley & Aldrich representative will continually monitor the breathing air in the vicinity of the immediate work area using a PID to measure total volatile organic compounds in the air at concentrations as low as 1 part per million (ppm). A downwind and upwind CAMP station monitoring for VOCs and particulate matter will be in place for all ground intrusive activities per DER-10. The air in the work zone will also be monitored for visible dust generation.

If VOC measurements above 5 ppm are sustained for 15 minutes or visible dust generation is observed, the intrusive work will be temporarily halted, and a more rigorous monitoring of VOCs and dust using recordable meters will be implemented in accordance with the NYSDOH Generic Community Air Monitoring Plan (CAMP). CAMP data will be provided to NYSDEC in the daily reports, further detailed in Section 8. The NYSDOH CAMP guidance document is included as Appendix G.

When work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of engineering controls such as vapor/dust barriers, temporary negative pressure enclosures, or special ventilation devices should be considered to prevent exposures related to the work activities and to control dust and odors. Consideration should be given to implementing the planned activities when potentially exposed populations are at a minimum, such as during weekends or evening hours in non-residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 ppm, monitoring should occur within the occupied structure(s). Background readings in the occupied spaces must be taken prior to commencement of the planned work. Any unusual background readings should be discussed with NYSDOH prior to commencement of the work.

- If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed 150 mcg/m3, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 mcg/m3 or less at the monitoring point.
- Depending upon the nature of contamination and remedial activities, other parameters (e.g., explosivity, oxygen, hydrogen sulfide, carbon monoxide) may also need to be monitored. Response levels and actions should be pre-determined, as necessary, for each site.

7.3 QUALITATIVE HUMAN HEALTH EXPOSURE ASSESSMENT (QHHEA)

A comprehensive QHHEA (on-Site and off-Site) will be performed following the collection of all RI data. The exposure assessment will be performed in accordance with Section 3.3(c)4 of DER-10 and the NYSDOH guidance for performing a qualitative EA (DER-10; Appendix 3B). The results of the QHHEA will be provided in the RIR. According to Section 3.10 of DER-10, and the Fish and Wildlife Resources Impact Analysis Decision Key in DER-10 Appendix 3C, a Fish and Wildlife exposure assessment will be performed (if needed) based on the results of the RI results.

8. Reporting

Daily reports will be submitted to NYSDEC and NYSDOH summarizing the Site activities completed during the remedial investigation. Daily reports will include a Site figure, a description of Site activities, a photo log, and CAMP data. Daily reports will be submitted the following morning after Site work is completed.

Following the completion of the work, a summary of the RI will be provided to NYSDEC in a Remedial Investigation Report (RIR) to support the implementation of proposed remedial action. The report will include:

- Summary of the RI activities;
- Figure showing sampling locations;
- Tables summarizing laboratory analytical results;
- Laboratory analytical data reports;
- Field sampling data sheets;
- Findings regarding the nature and extent of contamination at the Site; and
- Conclusions and recommendations.

The RIR may be combined with the Remedial Action Work Plan (RAWP) as an RIR/RAWP. The RIR/RAWP will include all data collected during the RI and adhere to the technical requirements of DER-10.

9. Schedule

The Site owner plans to implement this RIWP promptly after approval of this RIWP.

Anticipated RI Schedule	
BCP Application, RIWP and 30-Day Public Comment Period (Concurrent with BCP application)	September-November 2022
Executed Brownfield Cleanup Agreement	January 2023
NYSDEC Approval of RIWP	January 2023
RI Implementation	February 2023
RIR/RAWP Submittal and 45-Day Public Comment Period	March 2023
NYSDEC Approval of RIR/RAWP	April 2023

References

1. Brownfield Cleanup Program Application. 91 Bruckner Boulevard, The Bronx, New York. Prepared by 91 Bruckner Blvd LLC & Haley & Aldrich of New York, prepared for the New York State Department of Environmental Conservation. Submitted August 2022.

2. Phase I Environmental Site Assessment, 91 Bruckner Blvd / 402 E 134th Street, Bronx, New York. Prepared by PW Grosser Consulting Inc., prepared for Artist Construction, September 2021.

3. Phase II Environmental Site Assessment, 91 Bruckner Blvd, Bronx, New York. Prepared by PW Grosser Consulting Inc., prepared for Artist Construction, October 2021.

4. Phase II Limited Environmental Site Investigation Report, 91 Bruckner Boulevard, Bronx, New York. Prepared by Haley & Aldrich of New York, prepared for Artist Construction, March 2022.

5. Program Policy DER-10, "Technical Guidance for Site Investigation and Remediation," New York State Department of Environmental Conservation, May 2010.

TABLES

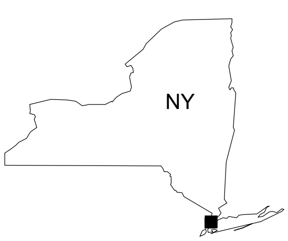
Table 1. Sample and Analysis Plan
91 Bruckner Boulevard
Bronx, New York

Boring Number	Sample Depth	Target Compound List VOCs (8260B)	Target Compound List SVOCs (8270C)	Total Analyte List Metals (6010)	PCBs (8082)	Pesticides (8081B)	PFAS (1633)	1,4-Dioxane (8270 SIM)	Total Lead	TCLP Lead	VOCs (TO-15)
SOIL											
	0-0.5'	X	X	X	X	X	X	X			
SB-1	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-2	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-3	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-4	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X		X	
	2-4'								X	X	
SB-5	4-6'								X	X	
	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-2'								X	X	
DB-01	2-4'								X	X	
	4-6'								X	X	
	0-2'								X	X	
DB-01A	2-4'								X	X	
	4-6'								X	X	
	0-2'								X	X	
DB-02	2-4'								X	X	
	4-6'								X	X	
	0-2'								X	X	
DB-02A	2-4'								X	X	
	4-6'								X	X	
	0-2'								X	X	
DB-03	2-4'								X	X	
	4-6'								X	X	
	0-2'								X	X	
DB-03A	2-4'								X	X	
	4-6'								X	X	
	0-2'								X	X	
DB-04	2-4'								X	X	
	4-6'								X	X	
	0-2'								X	X	
DB-04A	2-4'								X	X	
	4-6'								X	X	
	0-0.5'	X	X	X	X	X	X	X			
SB-6	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-7	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-8	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-9	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-10	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-11	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-12	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-13	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
	0-0.5'	X	X	X	X	X	X	X			
SB-14	6-8'	X	X	X	X	X	X	X			
	12-14'	X	X	X	X	X	X	X			
GROUNDWATER											
MW-1	-	X	X	X	X	X	X	X			
MW-2	-	X	X	X	X	X	X	X			
MW-3	-	X	X	X	X	X	X	X			
MW-4	-	X	X	X	X	X	X	X			
MW-5	-	X	X	X	X	X	X	X			
MW-6	-	X	X	X	X	X	X	X			
MW-7	-	X	X	X	X	X	X	X			
SOIL VAPOR											
SV-1	12-14'										X
SV-2	12-14'										X
SV-3	12-14'										X
SV-4	12-14'										X
SV-5	12-14'										X
SV-6	12-14'										X
SV-7	12-14'										X
SV-8	12-14'										X
SV-9	12-14'										X
SV-10	12-14'										X
SV-11	12-14'										X

Notes:
VOCs - Volatile Organic Compounds
SVOCs - Semi-volatile Organic Compounds
PCBs - Polychlorinated biphenyls
PFAS - Per- and Polyfluoroalkyl Substances
Groundwater samples to be run for total and dissolved metals

QAQC samples include:
MS/MSD - 1 for every 20 samples
Field Duplicate - 1 for every 20 samples
Trip Blanks - 1 per cooler of samples to be analyzed for VOCs
Field Blanks - 1 for every 20 samples

FIGURES



N

MAP SOURCE: USGS
SITE COORDINATES: 40°48'20"N, 73°55'27"W

HALEY ALDRICH

REMEDIAL INVESTIGATION WORK PLAN
91 BRUCKNER BOULEVARD
BRONX, NY

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
AUGUST 2022

FIGURE 1

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\0201577\GIS\Maps\2022_08_204520\204520_000_0001_PROJECT_LOCUS.mxd — USER: hwachholz — LAST SAVED: 8/5/2022 12:22:09 PM

LEGEND

- MONITORING WELL/SOIL BORING
- SOIL BORING
- SOIL VAPOR
- FILL PORT
- DELINEATION SOIL BORING
- BOILER ROOM
- ABOVE GROUND STORAGE TANK
- PARCEL BOUNDARY
- SITE BOUNDARY/PROPOSED REDEVELOPMENT BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
3. AERIAL IMAGERY SOURCE: ESRI

HALEY ALDRICH

REMEDIAL INVESTIGATION WORK PLAN
91 BRUCKNER BOULEVARD
BRONX, NEW YORK

PROPOSED SAMPLE LOCATION MAP

JANUARY 2023

FIGURE 2

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LEGEND

- 500-FT BUFFER
- PARCEL BOUNDARY
- SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
3. AERIAL IMAGERY SOURCE: ESRI

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SCALE IN FEET

HALEY ALDRICH

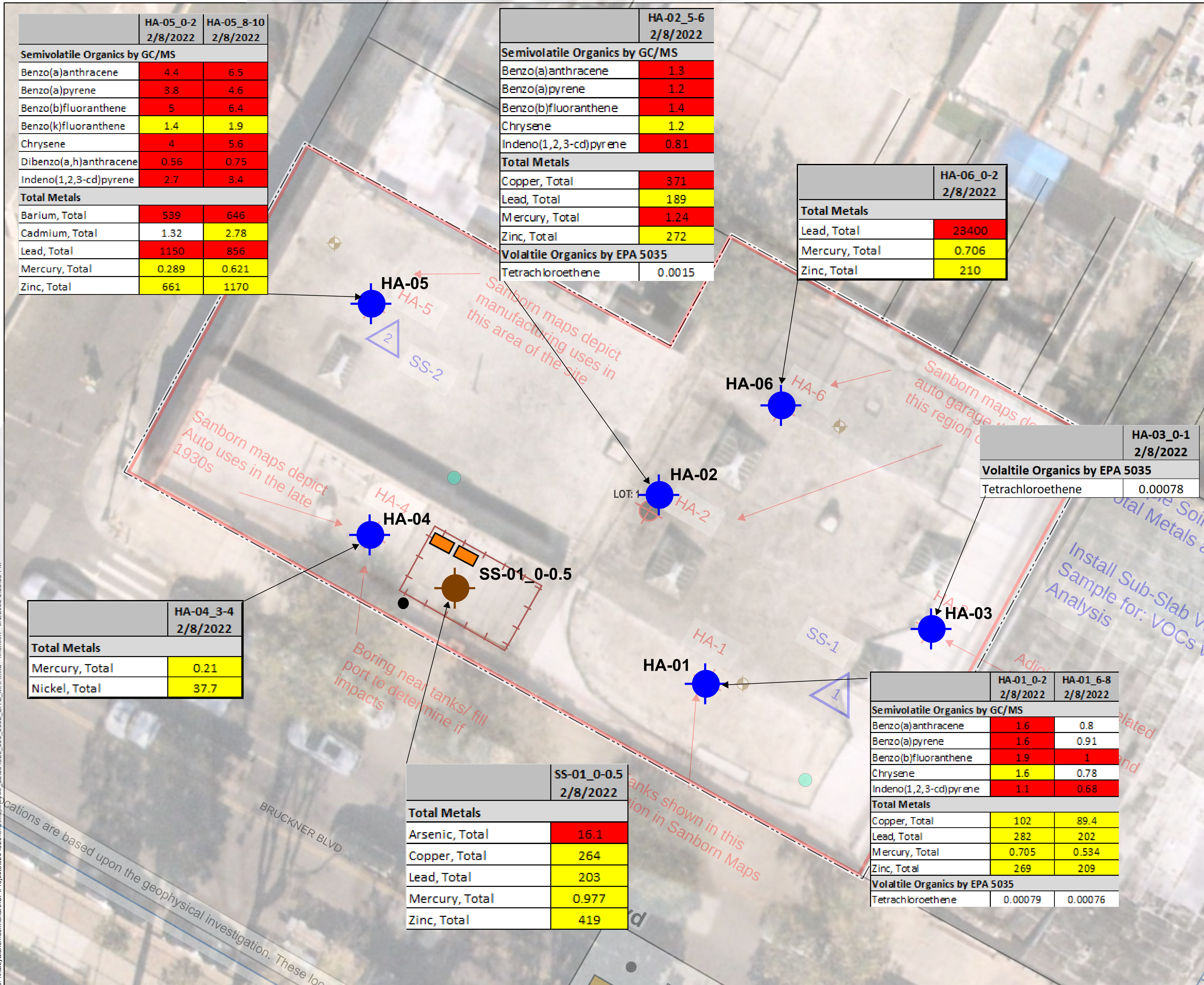
REMEDIAL INVESTIGATION WORK PLAN
91 BRUCKNER BOULEVARD
BRONX, NEW YORK

SURROUNDING LAND USE -
SENSITIVE RECEPTOR MAP

AUGUST 2022

FIGURE 3

GIS FILE PATH: \\haleyaldrich.com\share\CF\Projects\0201577\GIS\Maps\2022_08_204520\204520_000_0003_SENSITIVE_RECEPTOR_MAP.mxd — USER: hwachholz — LAST SAVED: 8/12/2022 3:04:39 PM



	HA-05_0-2 2/8/2022	HA-05_8-10 2/8/2022
Semivolatile Organics by GC/MS		
Benzo(a)anthracene	4.4	6.5
Benzo(a)pyrene	3.8	4.6
Benzo(b)fluoranthene	5	6.4
Benzo(k)fluoranthene	1.4	1.9
Chrysene	4	5.6
Dibenzo(a,h)anthracene	0.56	0.75
Indeno(1,2,3-cd)pyrene	2.7	3.4
Total Metals		
Barium, Total	539	646
Cadmium, Total	1.32	2.78
Lead, Total	1150	856
Mercury, Total	0.289	0.621
Zinc, Total	661	1170

	HA-02_5-6 2/8/2022
Semivolatile Organics by GC/MS	
Benzo(a)anthracene	1.3
Benzo(a)pyrene	1.2
Benzo(b)fluoranthene	1.4
Chrysene	1.2
Indeno(1,2,3-cd)pyrene	0.81
Total Metals	
Copper, Total	371
Lead, Total	189
Mercury, Total	1.24
Zinc, Total	272
Volatile Organics by EPA 5035	
Tetrachloroethene	0.0015

	HA-06_0-2 2/8/2022
Total Metals	
Lead, Total	23400
Mercury, Total	0.706
Zinc, Total	210

	HA-03_0-1 2/8/2022
Volaltile Organics by EPA 5035	
Tetrachloroethene	0.00078

	HA-04_3-4 2/8/2022
Total Metals	
Mercury, Total	0.21
Nickel, Total	37.7

	SS-01_0-0.5 2/8/2022
Total Metals	
Arsenic, Total	16.1
Copper, Total	264
Lead, Total	203
Mercury, Total	0.977
Zinc, Total	419

	HA-01_0-2 2/8/2022	HA-01_6-8 2/8/2022
Semivolatile Organics by GC/MS		
Benzo(a)anthracene	1.6	0.8
Benzo(a)pyrene	1.6	0.91
Benzo(b)fluoranthene	1.9	1
Chrysene	1.6	0.78
Indeno(1,2,3-cd)pyrene	1.1	0.68
Total Metals		
Copper, Total	102	89.4
Lead, Total	282	202
Mercury, Total	0.705	0.534
Zinc, Total	269	209
Volaltile Organics by EPA 5035		
Tetrachloroethene	0.00079	0.00076

LEGEND

- SITE BOUNDARY
- APPROXIMATE FORMER ABOVEGROUND STORAGE TANK LOCATION
- APPROXIMATE FORMER BOILER ROOM LOCATION
- APPROXIMATE FORMER FILL PORT LOCATION
- SOIL BORING LOCATION
- SURFACE SOIL SAMPLE LOCATION

Analyte	Units	NY-RESRR	NY-UNRES
Semivolatile Organics by GC/MS			
Benzo(a)anthracene	mg/kg	1	1
Benzo(a)pyrene	mg/kg	1	1
Benzo(b)fluoranthene	mg/kg	1	1
Benzo(k)fluoranthene	mg/kg	3.9	0.8
Chrysene	mg/kg	3.9	1
Dibenzo(a,h)anthracene	mg/kg	0.33	0.33
Indeno(1,2,3-cd)pyrene	mg/kg	0.5	0.5
Total Metals			
Arsenic, Total	mg/kg	16	13
Barium, Total	mg/kg	400	350
Cadmium, Total	mg/kg	4.3	2.5
Copper, Total	mg/kg	270	50
Lead, Total	mg/kg	400	63
Mercury, Total	mg/kg	0.81	0.18
Nickel, Total	mg/kg	310	30
Zinc, Total	mg/kg	10000	109
Volaltile Organics by EPA 5035			
Tetrachloroethene	mg/kg	19	1.3

1.Yellow shaded results exceed Unrestricted SCOs.
2.Red shaded results exceed both Unrestricted and Restricted Residential SCOs.
3.NY-RESRR: New York NYCRR Part 375 Restricted-Residential Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
4.NY-UNRES: New York NYCRR Part 375 New York Unrestricted use Criteria Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
5.The units are mg/kg (Milligrams per kilogram).

N

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SCALE IN FEET

HALEY ALDRICH

REMEDIAL INVESTIGATION WORK PLAN
91 BRUCKNER BOULEVARD
BRONX, NEW YORK

SUMMARY OF HISTORICAL SOIL ANALYTICAL DATA

AUGUST 2022

FIGURE 4

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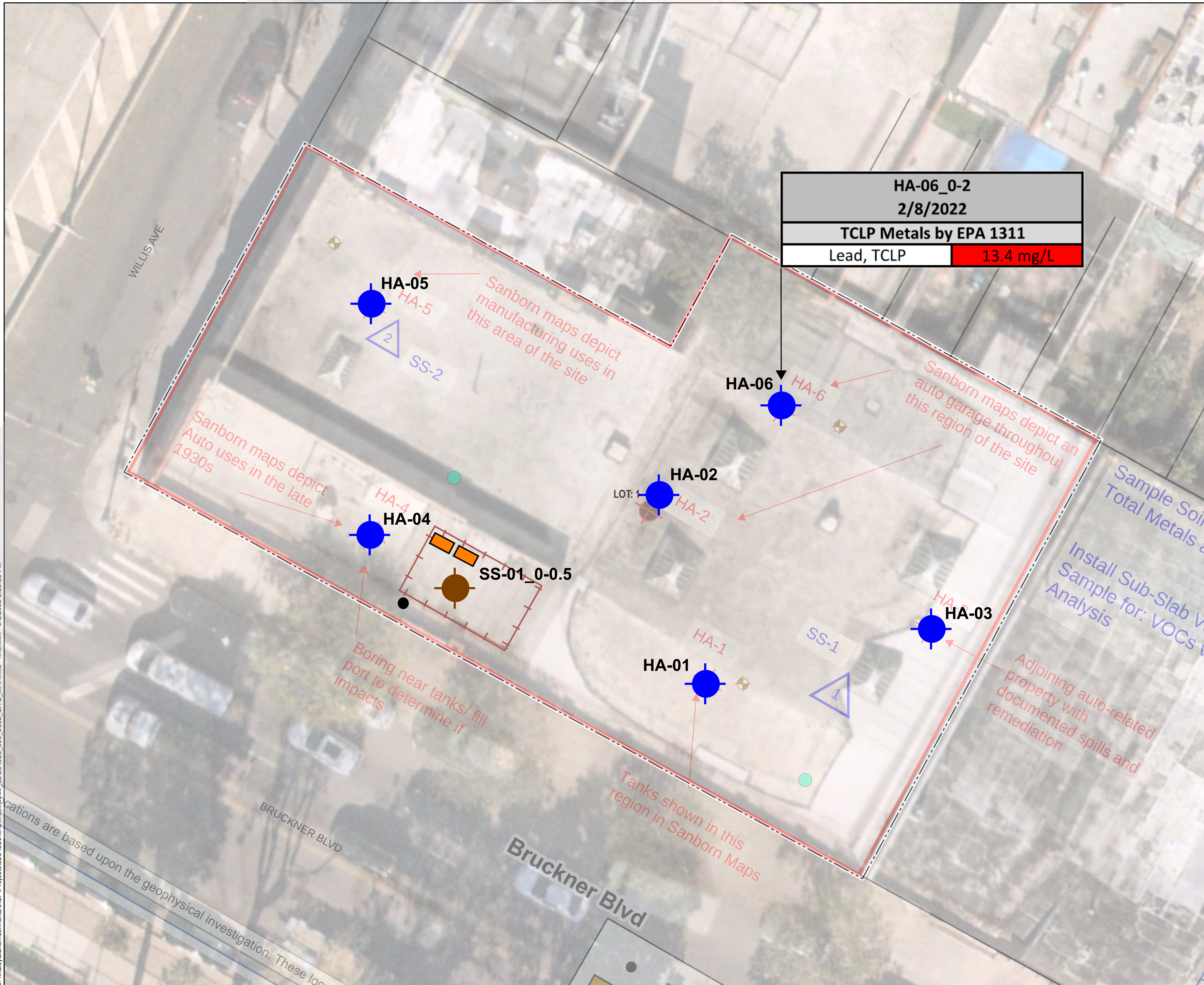


GIS:\\haleyaldrich.com\share\CF\Projects\0204520\GIS\Maps\2022_02\204520_000_0002_SITE_MAP.mxd - khensen - 2/11/2022 3:38:50 PM

LEGEND

- SITE BOUNDARY
- APPROXIMATE FORMER ABOVEGROUND STORAGE TANK LOCATION
- APPROXIMATE FORMER BOILER ROOM LOCATION
- APPROXIMATE FORMER FILL PORT LOCATION
- SOIL BORING LOCATION
- SURFACE SOIL SAMPLE LOCATION

USEPA Allowable Limit for Toxicity Characteristic	
TCLP Metals by EPA 1311	
Lead, TCLP	5.0 mg/L

NOTES

1. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
2. AERIAL IMAGERY SOURCE: NEARMAP, 19 OCTOBER 2021
3. SAMPLE SOIL FOR: VOCS, SVOCS, TOTAL METALS AND PCBS
4. MILLIGRAMS PER LITER - MG/L
5. TCLP - TOXICITY CHARACTERISTIC LEACHING PROCEDURE / USEPA STANDARD PROTOCOL TO EVALUATE METAL LEACHABILITY IN WASTES AND CONTAMINATED SOILS

1.Yellow shaded results exceed Unrestricted SCOs.
2.Red shaded results exceed both Unrestricted and Restricted Residential SCOs.
3.NY-RESRR: New York NYCRR Part 375 Restricted-Residential Criteria, New York Restricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
4.NY-UNRES: New York NYCRR Part 375 New York Unrestricted use Criteria per 6 NYCRR Part 375 Environmental Remediation Programs, effective December 14, 2006.
5.The units are mg/kg (Milligrams per kilogram).

N

0 20 40
SCALE IN FEET

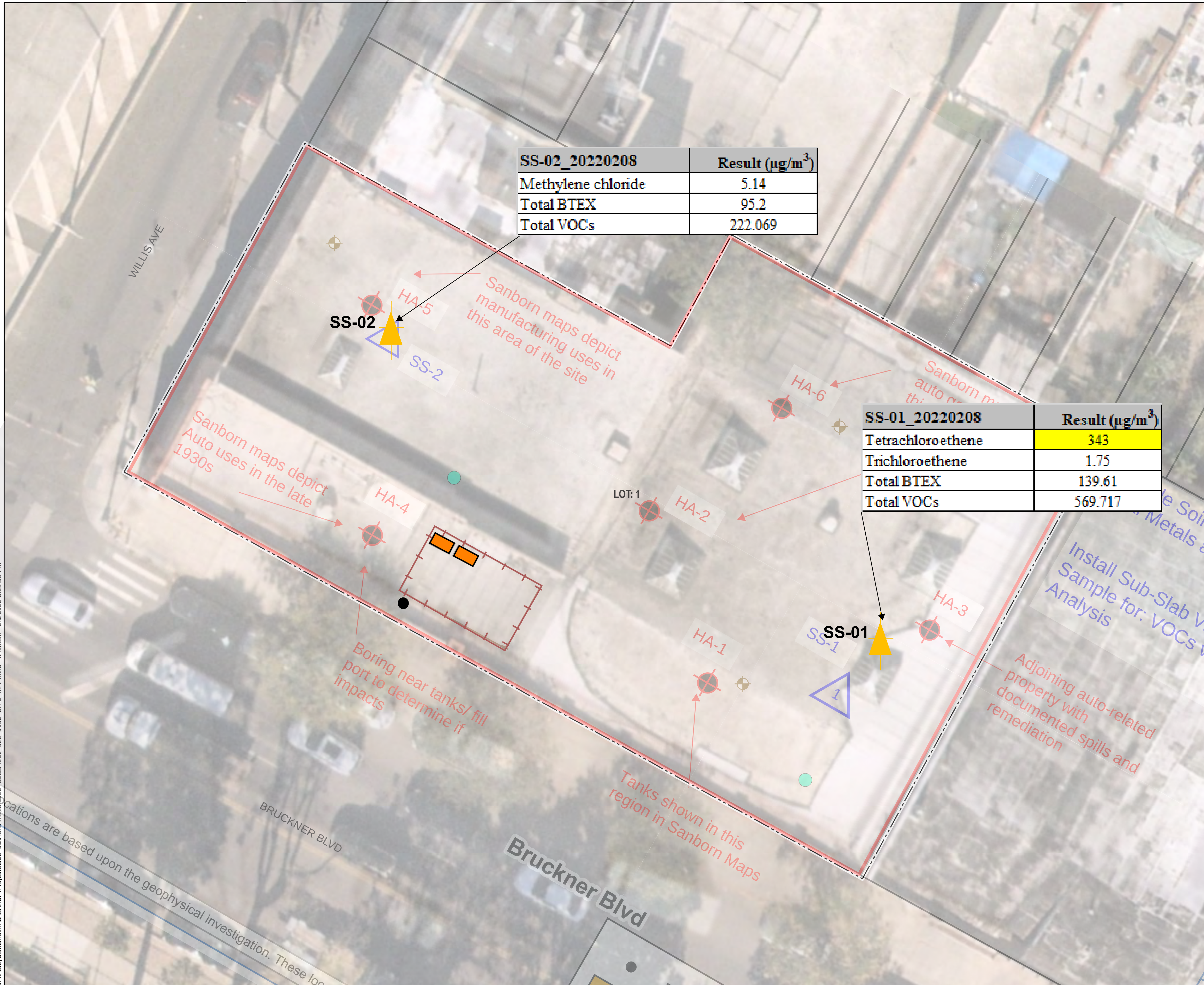
HALEY ALDRICH

REMEDIAL INVESTIGATION WORK PLAN
91 BRUCKNER BOULEVARD
BRONX, NEW YORK

SUMMARY OF HISTORICAL TCLP SOIL ANALYTICAL DATA

AUGUST 2022

FIGURE 5



SS-02_20220208	Result (µg/m³)
Methylene chloride	5.14
Total BTEX	95.2
Total VOCs	222.069

SS-01_20220208	Result (µg/m³)
Tetrachloroethene	343
Trichloroethene	1.75
Total BTEX	139.61
Total VOCs	569.717

LEGEND

- SITE BOUNDARY
- APPROXIMATE FORMER ABOVEGROUND STORAGE TANK LOCATION
- APPROXIMATE FORMER BOILER ROOM LOCATION
- APPROXIMATE FORMER FILL PORT LOCATION
- SOIL VAPOR POINT LOCATION

	NYSDOH AGVs	NY-SSC-A	NY-SSC-B	NY-SSC-C	Units
Methylene chloride	60	-	100	-	ug/m³
Tetrachloroethene	30	-	100	-	ug/m³
Trichloroethene	2	6	-	-	ug/m³

1. Yellow shaded result exceeds New York DOH AGV and/or triggers action based on comparison to New York DOH Soil Vapor Intrusion Decision Matrices
2. µg/m3 = micrograms per cubic meter.
3. NY-SSC-A: New York DOH Matrix A Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.
4. NY-SSC-B: New York DOH Matrix B Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.
5. NY-SSC-C: New York DOH Matrix C Sub-slab Vapor Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.
6. New York DOH Air Guidance Values Concentrations Criteria per Guidance for Evaluating Soil Vapor Intrusion, October 2006, and updated May 2017.

NOTES

1. ASSESSOR PARCEL DATA SOURCE: KINGS COUNTY
2. AERIAL IMAGERY SOURCE: NEARMAP, 19 OCTOBER 2021
3. SAMPLE SOIL FOR: VOCS, SVOCS, TOTAL METALS AND PCBS

N

0 20 40

SCALE IN FEET

HALEY ALDRICH

REMEDIAL INVESTIGATION WORK PLAN
91 BRUCKNER BOULEVARD
BRONX, NEW YORK

SUMMARY OF HISTORICAL SOIL VAPOR ANALYTICAL DATA

AUGUST 2022

FIGURE 6

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APPENDIX A

Previous Reports (Included as sharefile link)

https://haleyaldrich.sharefile.com/d-s4eb73d88d6164954b64b6e15b3a9eac9

APPENDIX B

Field Sampling Plan

www.haleyaldrich.com

FIELD SAMPLING PLAN
91 BRUCKNER BOULEVARD
BRONX, NEW YORK

by
Haley & Aldrich of New York
New York, New York

for
91 Bruckner Blvd LLC
162 Manhattan Avenue
Brooklyn, New York 11206

File No. 0204520
August 2022

Table of Contents

Table of Contents

1. Introduction

This Field Sampling Plan (FSP) has been prepared as a component of the Remedial Investigation Work Plan (RIWP) for the subject Site located at 91 Bruckner Boulevard, Bronx, New York. This document was prepared to establish field procedures for field data collection to be performed in support of the RIWP for the Site.

The RIWP includes this Field Sampling Plan, a Quality Assurance Project Plan (QAPP), Health and Safety Plan (HASP), and Community Air Monitoring Plan (CAMP), which are included as part of this plan by reference.

The standard operating procedures (SOP) included as components of this plan will provide the procedures necessary to meet the project objectives. The SOPs will be used as reference for the methods to be employed for field sample collection and handling and the management of field data collected in the execution of the approved RIWP. The SOPs include numerous methods to execute the tasks of the RIWP. The Project Manager will select the appropriate method as required by field conditions and/or the objective the respective project task at the time of sample collection. Field procedures will be conducted in general accordance with the New York State Department of Conservation (NYSDEC) Technical Guidance for Site Investigation and Remediation (DER-10) and the Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC Part 375 Remedial Program when applicable.

2. Field Program

This FSP provides the general purpose of sampling as well as procedural information. The RIWP contains the details on sampling and analysis (locations, depths, frequency, analyte lists, etc.).

The field program has been designed to acquire the necessary data to comply with the RIWP, and includes the following tasks:

- Soil sampling;
- Groundwater sampling;
- Soil vapor sampling;
- Sampling of investigation of derived wastes (IDW) as needed for disposal.

A Limited Phase II Environmental Investigation was performed at the Site in February 2022 (Limited Phase II ESI) by Haley & Aldrich. This SI revealed the presence of elevated semi-volatile organic compound (SVOC) and metal concentrations in soil and volatile organic compound (VOC) concentrations in soil vapor at the Site, indicating the need for additional investigation and sampling on order to comprehensively understand the extent of contamination on the Site.

Previous investigations did not comprehensively delineate the extent of soil, groundwater and soil vapor contamination at the Site. A RI will be performed upon acceptance of the Site into the BCP and approval of the RIWP that will include additional targeted soil, groundwater, and soil vapor sampling. Results of the additional sample analyses will be used to confirm the results of the previous Site characterization activities, potentially identify an on-site source, and determine a course for remedial action.

These SOPs presented herein may be changed as required, dependent on-site conditions, or equipment limitations, at the time of sample collection. If the procedures employed differ from the SOP, the deviations will be documented in the associated sampling report.

3. Utility Clearance

Invasive remedial activities such as excavation or remedial construction activities require location of underground utilities prior to initiating work. Such clearance is sound practice in that it minimizes the potential for damage to underground facilities and more importantly, is protective of the health and safety of personnel. Under no circumstances will invasive activities be allowed to proceed without obtaining proper utility clearance by the appropriate public agencies and/or private entities. This clearance requirement applies to all work on both public and private property, whether located in a dense urban area or a seemingly out-of-the-way rural location.

The drilling contractor performing the work will be responsible for obtaining utility clearance.

Utility clearance is required by law, and obtaining clearance includes contacting a public or private central clearance agency via a “one-call” telephone service and providing the proposed exploration location information. It is important to note that public utility agencies may not, and usually do not have information regarding utility locations on private property.

Before beginning subsurface work at any proposed exploration locations, it is critical that all readily-available information on underground utilities and structures be obtained. This includes publicly available information as well as information in the possession of private landowners. Any drawings obtained must be reviewed in detail for information pertaining to underground utilities.

Using the information obtained, the site should be viewed in detail for physical evidence of buried lines or structures, including pavement cuts and patches, variation in or lack of vegetation, variations in grading, etc. Care must also be taken to avoid overhead utilities as well. Presence of surface elements of buried utilities should be documented, such as manholes, gas or water service valves, catch basins, monuments or other evidence.

Overhead utility lines must be considered when choosing exploration and excavation locations. Most states require a minimum of 10 ft of clearance between equipment and energized wires. Such separation requirements may also be voltage-based and may vary depending on state or municipality regulations. In evaluating clearance from overhead lines, the same restrictions may apply to “drops”, or wires on a utility pole connecting overhead and underground lines.

Using the information obtained and observations made, proposed exploration or construction locations should be marked in the field. Marking locations can be accomplished using spray paint on the ground, stakes, or other means. All markings of proposed locations should be made in white, in accordance with the generally-accepted universal color code for facilities identification (AWMA 4/99):

- White: Proposed Excavation or Drilling location
- Pink: Temporary Survey Markings
- Red: Electrical Power Lines, Cables, Conduit and Lighting Cables
- Yellow: Gas, Oil, Steam, Petroleum or Gaseous Materials
- Orange: Communication, Alarm or Signal Lines, Cables or Conduits
- Blue: Potable Water
- Purple: Reclaimed Water, Irrigation and Slurry Lines
- Green: Sewers and Drain Lines

In order to effectively evaluate the proposed locations with these entities, detailed, accurate measurements between the proposed locations and existing surface features should be obtained. Such features can be buildings, street intersections, utility poles, guardrails, etc.

Obtaining the utility clearance generally involves the designated “One-Call” underground facilities protection organization for the area and the landowner and one or both following entities:

- A third-party utility locator company will be utilized to locate underground utilities outside of the public right-of-way; and/or
- “Soft dig” excavation techniques to confirm or deny the presence of underground utilities in the area.

The proposed locations should be evaluated in light of information available for existing underground facilities. The detailed measurement information described above will be required by the “one call” agency. The owners of the applicable, participating underground utilities are obligated to mark their respective facilities at the site in the colors described above. Utility stake-out activities will typically not commence for approximately 72 hours after the initial request is made.

The public and private utility entities generally only mark the locations of their respective underground facilities within public rights-of-way. Determination of the locations of these facilities on private property will be the responsibility of the property owner or Contractor. If available information does not contain sufficient detail to locate underground facilities with a reasonable amount of confidence, alternate measures may be appropriate, as described below. In some cases, the memory of a long-time employee of a facility on private property may be the best or only source of information. It is incumbent on the Consultant or Contractor to exercise caution and use good judgement when faced with uncertainty.

Note: It is important to note that not all utilities are participants in the “one-call” agency or process. As such, inquiries must be made with the “one-call” agency to determine which entities do not participate, so they can be contacted independently.

Most utility stakeouts have a limited time period for which they remain valid, typically two to three weeks. It is critical that this time period be considered to prevent expiration of clearance prior to completion of the invasive activities, and the need to repeat the stake-out process.

Care must be exercised to document receipt of notice from the involved agencies of the presence or absence of utilities in the vicinity of the proposed locations.

Most agencies will generally provide a telephone or fax communication indicating the lack of facilities in the project area. If contact is not made by all of the agencies identified by the “one-call” process, do not assume that such utilities are not present. Re-contact the “one-call” agency to determine the status.

For complicated sites with multiple proposed locations and multiple utilities, it is advisable to arrange an on-site meeting with utility representatives. This will minimize the potential for miscommunication amongst the involved parties.

Completion of the utility stake out process is not a guarantee that underground facilities will not be encountered in excavations or boreholes; in fact, most “one-call” agencies and individual utilities do not offer guarantees, nor do they accept liability for damage that might occur. In areas outside the public right-of-way, a utility locating service may be utilized to locate underground utilities. It is advisable that any invasive activities proceed with extreme caution in the upper four to five feet in the event the clearance has failed to identify an existing facility. This may necessitate hand-excavation or probing to confirm potential presence of shallow utilities. If uncertainty exists for any given utility, extra activities can be initiated to solve utility clearance concerns. These options include:

- Screening the proposed work areas with utility locating devices, and/or hiring a utility locating service to perform this task.
- Hand digging, augering or probing to expose or reveal shallow utilities and confirm presence and location. In northern climates, this may require advancing to below frost line, typically at least four feet.
- Using "soft dig" techniques that utilize specialized tools and compressed air to excavate soils and locate utilities. This technique is effective in locating utilities to a depth of four to five feet.

Equipment/Materials:

- White Spray paint
- Wooden stakes, painted white or containing white flagging
- Color-code key
- Available drawings

4. Field Data Recording

This procedure describes protocol for documenting the investigation activities in the field. Field data serves as the cornerstone for an environmental project, not only for site characterization but for additional phases of investigation or remedial design. Producing defensible data includes proper and appropriate recording of field data as it is obtained in a manner to preserve the information for future use. This procedure provides guidelines for accurate, thorough collection and preservation of written and electronic field data.

Field data to be recorded during the project generally includes, but is not limited to, the following:

- general field observations;
- numeric field measurements and instrument readings;
- quantity estimates;
- sample locations and corresponding sample numbers;
- relevant comments and details pertaining to the samples collected;
- documentation of activities, procedures and progress achieved;
- contractor pay item quantities;
- weather conditions;
- a listing of personnel involved in site-related activities;
- a log of conversations, site meetings and other communications; and,
- field decisions and pertinent information associated with the decisions.

4.1 WRITTEN FIELD DATA

Written field data will be collected using a standardized, pre-printed field log form. In general, use of a field log form is preferable as it prompts field personnel to make appropriate observations and record data in a standardized format. This promotes completeness and consistency from one person to the next. Otherwise, electronic data collection using a handheld device produces equal completeness and consistency using a preformatted log form.

In the absence of an appropriate pre-printed form, the data should be recorded in an organized and structured manner in a dedicated project field log book. Log books must be hard cover, bound so that pages cannot be added or removed, and should be made from high-grade 50% rag paper with a water-resistant surface.

The following are guidelines for use of field log forms and log books:

1. Information must be factual and complete.
2. All entries will be made in black indelible ink with a ballpoint pen and will be written legibly. Do not use “rollerball” or felt tip-style pens, since the water-soluble ink can run or smear in the presence of moisture.
3. Field log forms should be consecutively numbered.
4. Each day’s work must start a new form/page.
5. At the end of each day, the current log book page or forms must be signed and dated by the field personnel making the entries.

6. Make data entries immediately upon obtaining the data. Do not make temporary notes in other locations for later transfer; this only increases the potential for error or loss of data.
7. Entry errors are to be crossed out with a single line and initialed by the person making the correction.
8. Do not leave blanks on log forms, if no entry is applicable for a given data field, indicate so with "NA" or a dash ("--").
9. At the earliest practical time, photocopies or typed versions of log forms and log book pages should be made and placed in the project file as a backup in the event the book or forms are lost or damaged.
10. Log books should be dedicated to one project only, i.e., do not record data from multiple projects in one log book.

4.2 ELECTRONIC DATA

Electronic data recording involves electronic measurement of field information through the use of monitoring instruments, sensors, gauges, and equipment controls. The following is a list of guidelines for proper recording and management of electronic field data:

1. Field data management should follow requirements of a project-specific data management plan (DMP), if applicable.
2. Use only instruments that have been calibrated in accordance with manufacturer's recommendations.
3. Usage of instruments, controls and computers for the purpose of obtaining field data should only be performed by personnel properly trained and experienced in the use of the equipment and software.
4. Use only fully-licensed software on personal computers and laptops.
5. Loss of electronic files may mean loss of irreplaceable data. Every effort should be made to back up electronic files obtained in the field as soon as practical. A backup file placed on the file server will minimize the potential for loss.
6. Electronic files, once transferred from field instruments or laptops to office computers, should be protected if possible, to prevent unwanted or inadvertent manipulation or modification of data. Several levels of protection are usually available for spreadsheets, including making a file "read-only" or assigning a password to access the file.
7. Protect CD disks from exposure to moisture, excessive heat or cold, magnetic fields, or other potentially damaging conditions.
8. Remote monitoring is often used to obtain stored electronic data from site environmental systems. A thorough discussion of this type of electronic field data recording is beyond the scope of this Section. Such on-site systems are generally capable of storing a limited amount of data as a comma-delimited or spreadsheet file. Users must remotely access the monitoring equipment files via modem or other access and download the data. In order to minimize the potential for loss of data, access and downloading of data should be performed frequently enough to ensure the data storage capacity of the remote equipment is not exceeded.

Equipment/Materials:

- Appropriate field log forms, or iPad® or equivalent with preformatted log forms.
- Indelible ball point pen (do not use "rollerball" or felt-tip style pens);
- Straight edge;
- Pocket calculator; and,
- Laptop computer (if required).

5. Aquifer Characterization

This procedure describes measurement of water levels in groundwater monitoring.

A synoptic gauging round will be completed to obtain water levels in monitoring wells. Water levels will be acquired in a manner that provides accurate data that can be used to calculate vertical and horizontal hydraulic gradients and other hydrogeologic parameters. Accuracy in obtaining the measurements is critical to ensure the usability of the data.

5.1 PROCEDURE

In order to provide reliable data, water level monitoring events should be collected over as short a period of time as practical. Barometric pressure can affect groundwater levels and, therefore, observation of significant weather changes during the period of water level measurements must be noted. Rainfall events and groundwater pumping can also affect groundwater level measurements. Personnel collecting water level data must note if any of these controls are in effect during the groundwater level collection period. Due to possible changes during the groundwater level collection period, it is imperative that the time of data collection at each station be accurately recorded. Water levels will also be collected prior to any sample collection that day.

The depth to groundwater will be measured with an electronic depth-indicating probe. Prior to obtaining a measurement, a fixed reference point on the well casing will be established for each well to be measured. Unless otherwise established, the reference point is typically established and marked on the north side of the well casing. Do not use protective casings or flush-mounted road boxes as a reference, due to the potential for damage or settlement. The elevation of the reference point shall be obtained by accepted surveying methods, to the nearest 0.01 ft.

The water level probe will be lowered into the well until the meter indicates (via indicator light or tone) the water is reached. The probe will be raised above water level and slowly lowered again until water is indicated. The cable will be held against the side of the inner protective casing at the point designated for water level measurements and a depth reading taken. This procedure will be followed three times or until a consistent value is obtained. The value will be recorded to the nearest 0.01 feet on the Groundwater Level Monitoring Report form.

Upon completion, the probe will be raised to the surface and together with the amount of cable that entered the well casing, will be decontaminated in accordance with methods described in Equipment Decontamination Procedure.

Equipment/Materials:

- Battery-operated, non-stretch electronic water level probe with permanent markings at 0.01 ft. increments, such as the Solinst Model 101 or equivalent.
- The calibrated cable on the depth indicator will be checked against a surveyor’s steel tape once per quarter year. A new cable will be installed if the cable has changed by more than 0.01% (0.01 feet for a 100-foot cable). See also the Field Instruments – Use and Calibration Procedure.
- Groundwater Level Monitoring Report form.

6. Sample Collection for Laboratory Analysis

6.1 SOIL SAMPLE COLLECTION FOR LABORATORY ANALYSIS

The following procedure is an introduction to soil sampling techniques and an outline of field staff responsibilities. All samples will be collected with dedicated sampling equipment.

6.1.1 Preparatory Requirements

Prior to the beginning of any remedial investigation or remedial measures activities, staff must attend a project briefing for the purpose of reviewing the project work plan, site and utility plans, drawings, applicable regulations, sampling location, depth, and criteria, site contacts, and other related documents. Health and safety concerns will be documented in a site-specific Health & Safety Plan.

A file folder for the field activities should be created and maintained such that all relevant documents and log forms likely to be useful for the completion of field activities by others are readily available in the event of personnel changes.

6.1.2 Soil Classification

The stratigraphic log is a factual description of the soil at the borehole location and is relied upon to interpret the soil characteristics, and their influence and significance in the subsurface environment. The accuracy of the stratigraphic log is to be verified by the person responsible for interpreting subsurface conditions. An accurate description of the soil stratigraphy is essential for a reasonable understanding of the subsurface conditions. Confirmation of the field description by examination of representative soil samples by the project geologist, hydrogeologist, or geotechnical engineer (whenever practicable) is recommended.

The ability to describe and classify soil correctly is a skill that is learned from a person with experience and by systematic training and comparison of laboratory results to field descriptions.

6.1.2.1 Data Recording

Several methods for classifying and describing soils or unconsolidated sediments are in relatively widespread use. The Unified Soil Classification System (USCS) is the most common. With the USCS, a soil is first classified according to whether it is predominantly coarse-grained or fine-grained.

The description of fill soil is similar to that of natural undisturbed soil except that it is identified as fill and not classified by USCS group, relative density, or consistency. Those logging soils must attempt to distinguish between soils that have been placed (i.e., fill) and not naturally present; or soils that have been naturally present but disturbed (i.e., disturbed native).

It is necessary to identify and group soil samples consistently to determine the subsurface pattern or changes and non-conformities in soil stratigraphy in the field at the time of drilling. The stratigraphy in each borehole during drilling is to be compared to the stratigraphy found at the previously completed boreholes to ensure that pattern or changes in soil stratigraphy are noted and that consistent terminology is used.

Visual examination, physical observations and manual tests (adapted from ASTM D2488, visual-manual procedures) are used to classify and group soil samples in the field and are summarized in this subsection. ASTM D2488 should be reviewed for detailed explanations of the procedures. Visual-manual procedures used for soil identification and classification include:

- visual determination of grain size, soil gradation, and percentage fines;
- dry strength, dilatancy, toughness, and plasticity (thread or ribbon test) tests for identification of inorganic fine-grained soil (e.g., CL, CH, ML, or MH); and
- soil compressive strength and consistency estimates based on thumb indent and pocket penetrometer (preferred) methods.

Soil characteristics like plasticity, strength and dilatancy should be determined using the Haley & Aldrich Soil Identification Field Form.

6.1.2.2 Field Sample Screening

Upon the collection of soil samples, the soil is screened with a photoionization detector (PID) for the presence of organic vapor. This is accomplished by running the PID across the soil sample. The highest reading and sustained readings are recorded.

Note: The PID measurement must be done upwind of the excavating equipment or any running engines so that exhaust fumes will not affect the measurements.

Another method of field screening is head space measurements. This consists of placing a portion of the soil sample in a sealable glass jar, placing aluminum foil over the jar top, and tightening the lid. Alternatively, plastic sealable bags may be utilized for field screen in lieu of glass containers. The jar should only be partially filled. Shake the jar and set aside for at least 30 minutes. After the sample has equilibrated, the lid of the jar can be opened; the foil is punctured with the PID probe and the air (headspace) above the soil sample is monitored. This headspace reading on the field form or in the field book is recorded. All head space measurements must be completed under similar conditions to allow comparability of results. Soil classification and PID readings will be recorded in the daily field report.

Equipment/Materials:

- Pocket knife or small spatula
- Small handheld lens
- Stratigraphic Log (Overburden) (Form 2001)
- Tape Measure
- When sampling for PFAS, acceptable materials for sampling include stainless steel, high density polyethylene (HDPE), PVC, silicone, acetate, and polypropylene.

6.1.3 Soil Sampling

Soil samples will be collected from acetate liners installed by a track-mounted direct push drill rig (Geoprobe®) operated by a licensed operator. Soil samples will be collected using a stainless-steel trowel or sampling spoon into laboratory provided sample containers. If it is necessary to relocate any proposed sampling location due to terrain, utilities, access, etc., the Project Manager must be notified, and an alternate location will be selected.

Prior to use and between each sampling location at an environmental site, the sampling equipment must be decontaminated. All decontamination must be conducted in accordance with the project specific plans or the methods presented in SOP 7.0.

6.1.4 Sampling Techniques

The following procedure describes typical soil sample collection methods for submission of samples to a laboratory for chemical analysis. The primary goal of soil sampling is to collect representative samples for examination and chemical analysis (if required).

Environmental soil samples obtained for chemical analyses are collected with special attention given to the rationale behind determining the precise zone to sample, the specifics of the method of soil extraction and the requisite decontamination procedures. Preservation, handling and glassware for environmental soil samples varies considerably depending upon several factors including the analytical method to be conducted, and the analytical laboratory being used.

6.1.4.1 Grab Versus Composite Samples

A grab sample is collected to identify and quantify conditions at a specific location or interval. The sample is comprised of the minimum amount of soil necessary to make up the volume of sample dictated by the required sample analyses. Composite samples may be obtained from several locations or along a linear trend (in a test pit or excavation). Sampling may occur within or across stratification.

6.2 GROUNDWATER SAMPLE COLLECTION FOR LABORATORY ANALYSIS

The following section describes two techniques for groundwater sampling: "Low Stress/Low Flow Methods" and "Typical Sampling Methods."

"Low Stress/Low Flow" methods will be employed when collecting groundwater samples for the evaluation of volatile constituents (i.e., dissolved oxygen (DO)) or in fine-grained formations where sediment/colloid transport is possible. Analyses typically sensitive to colloidal transport issues include polychlorinated biphenyls (PCBs), polyaromatic hydrocarbons (PAHs) and metals.

The "Typical Sampling Methods" will be employed where the collection of parameters less sensitive to turbidity/sediment issues are being collected (general chemistry, pesticides and other semi-volatile organic compounds (SVOCs)).

NOTE: If non-aqueous phase liquids (NAPL) (light or dense) are detected in a monitoring well, groundwater sample collection will not be conducted, and the Project Manager must be contacted to determine a course of action.

6.2.1 Preparatory Requirements

- Verify well identification and location using borehole log details and location layout figures. Note the condition of the well and record any necessary repair work required.

- Prior to opening the well cap, measure the breathing space above the well casing with a handheld organic vapor analyzer to establish baseline breathing space VOC levels. Repeat this measurement once the well cap is opened. If either of these measurements exceeds the air quality criteria in the HASP, field personnel should adjust their PPE accordingly.

- Prior to commencing the groundwater purging/sampling, a water level must be obtained to determine the well volume for hydraulic purposes. In some settings, it may be necessary to allow the water level time to equilibrate. This condition exists if a watertight seal exists at the well cap and the water level has fluctuated above the top of screen; creating a vacuum or pressurized area in this air space. Three water level checks will verify static water level conditions have been achieved.

- Calculate the volume of water in the well. Typically overburden well volumes consider only the quantity of water standing in the well screen and riser; bedrock well volumes are calculated on the quantity of water within the open core hole and within the overburden casing.

6.2.2 Well Development

Well development is completed to remove fine grained materials from the well but in such a manner as to not introduce fines from the formation into the sand pack. Well development continues until the well responds to water level changes in the formation (i.e., a good hydraulic connection is established between the well and formation) and the well produces clear, sediment-free water to the extent practical.

- Attach appropriate pump and lower tubing into well.
- Gauge well and calculate one well volume. Turn on pump. If well runs dry, shut off pump and allow to recover.
- Surging will be performed by raising and lowering the pump several times to pull fine-grained material from the well. Periodically measure turbidity level using a La Motte turbidity reader.
- The second and third steps will be repeated until turbidity is less than 50 nephelometric turbidity units (NTU) or when 10 well volumes have been removed.
- All water generated during cleaning and development procedures will be collected and contained on site in 55-gallon drums for future analysis and appropriate disposal.

Equipment:

- Appropriate health and safety equipment
- Knife
- Power source (generator)
- Field book
- Well Development Form (Form 3006)
- Well keys
- Graduated pails

- Pump and tubing
- Cleaning supplies (including non-phosphate soap, buckets, brushes, laboratory-supplied distilled/deionized water, tap water, cleaning solvent, aluminum foil, plastic sheeting, etc.)
  Water level meter

6.2.3 Well Purging and Stabilization Monitoring (Low Stress/Low Flow Method)

The preferred method for groundwater sampling will be the low stress/low flow method described below.

- Slowly lower the pump, safety cable, tubing and electrical lines into the well to the depth specified by the project requirements. The pump intake must be at the midpoint of the well screen to prevent disturbance and resuspension of any sediment in the screen base.

- Before starting the pump, measure the water level again with the pump in the well leaving the water level measuring device in the well when completed.

- Purge the well at 100 to a maximum of 500 milliliters per minute (mL/min). During purging, the water level should be monitored approximately every 5 minutes, or as appropriate. A steady flow rate should be maintained that results in drawdown of 0.3 feet or less. The rate of pumping should not exceed the natural flow rate conditions of the well. Care should be taken to maintain pump suction and to avoid entrainment of air in the tubing. Record adjustments made to the pumping rates and water levels immediately after each adjustment.

- During the purging of the well, monitor and record the field indicator parameters (pH, temperature, conductivity, oxidation-reduction (redox) reaction potential (ORP), dissolved oxygen (DO), and turbidity) approximately every five minutes. Stabilization is considered to be achieved when the final groundwater flow rate is achieved, and three consecutive readings for each parameter are within the following limits:

  - pH: 0.1 pH units of the average value of the three readings;
  - Temperature: 3 percent of the average value of the three readings;
  - Conductivity: 0.005 milliSiemen per centimeter (mS/cm) of the average value of the three readings for conductivity <1 mS/cm and 0.01 mS/cm of the average value of the three readings for conductivity >1 mS/cm;
  - ORP: 10 millivolts (mV) of the average value of the three readings;
  - DO: 10 percent of the average value of the three readings; and
  - Turbidity: 10 percent of the average value of the three readings, or a final value of less than 50 nephelometric turbidity units (NTU).

- The pump must not be removed from the well between purging and sampling.

6.2.4 Sampling Techniques

- If an alternate pump is utilized, the first pump discharge volumes should be discarded to allow the equipment a period of acclimation to the groundwater.

- Samples are collected directly from the pump with the groundwater being discharged directly into the appropriate sample container. Avoid handling the interior of the bottle or bottle cap and don new gloves for each well sampled to avoid contamination of the sample.

- Order of sample collection:

  - Polyfluoroalkyl substances (PFAS)
  - Volatile organic compounds (VOC)
  - 1,4-Dioxane
  - Semi-volatile organic compounds (SVOC)
  - Total Analyte List (TAL) metals

- No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including plumbers' tape and sample bottle cap liners with a PTFE layer.

- For low stress/low flow sampling, samples should be collected at a flow rate between 100 and 500 mL/min and such that drawdown of the water level within the well does not exceed the maximum allowable drawdown of 0.3 feet.

- The pumping rate used to collect a sample for VOC should not exceed 100 mL/min. Samples should be transferred directly to the final container 40 mL glass vials completely full and topped with a Teflon cap. Once capped the vial must be inverted and tapped to check for headspace/air presence (bubbles). If air is present, the sample will be discarded, and recollected until free of air.

- All samples must be labeled with:

  - A unique sample number
  - Date and time
  - Parameters to be analyzed
  - Project Reference ID
  - Sampler's initials

- Labels should be written in indelible ink and secured to the bottle with clear tape.

Equipment/Materials:

- pH meter, conductivity meter, DO meter, ORP meter, nephelometer, temperature gauge
- Field filtration units (if required)
- Purging/sampling equipment
  - Peristaltic Pump
- Water level probe

- Sampling materials (containers, log book/forms, coolers, chain of custody)
- Work Plan
- Health and Safety Plan
- When sampling for PFAS, acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene.

Note: Peristaltic pump use for VOC collection is not acceptable on NYSDEC/EPA/RCRA sites; this technique has gained acceptance in select areas where it is permissible to collect VOCs using a peristaltic pump at a low flow rate (e.g., Michigan).

Note: 1,4-Dioxane and PFAS purge and sample techniques will be conducted following the NYSDEC guidance documents (see Appendix C of the RIWP). Acceptable groundwater pumps include stainless steel inertia pump with HDPE tubing, peristaltic pump equipped with HDPE tubing and silicone tubing, stainless steel bailer with stainless steel ball or bladder pump (identified as PFAS-free) with HDPE tubing.

Field Notes:

- Field notes must document all the events, equipment used, and measurements collected during the sampling activities. Section 2.0 describes the data/recording procedure for field activities.
- The log book should document the following for each well sampled:
  - Identification of well
  - Well depth
  - Static water level depth and measurement technique
  - Sounded well depth
  - Presence of immiscible layers and detection/collection method
  - Well yield – high or low
  - Purge volume and pumping rate
  - Time well purged
  - Measured field parameters
  - Purge/sampling device used
  - Well sampling sequence
  - Sampling appearance
  - Sample odors
  - Sample volume
  - Types of sample containers and sample identification
  - Preservative(s) used
  - Parameters requested for analysis
  - Field analysis data and method(s)
  - Sample distribution and transporter
  - Laboratory shipped to
  - Chain of custody number for shipment to laboratory
  - Field observations on sampling event
  - Name collector(s)
  - Climatic conditions including air temperature
  - Problems encountered and any deviations made from the established sampling protocol.

A standard log form for documentation and reporting groundwater purging and sampling events are presented on the Groundwater Sampling Record, Low Flow Groundwater Sampling Form, and Low Flow Monitored Natural Attenuation (MNA) Field Sampling Form. Refer to Appendix A for example field forms.

Groundwater/Decon Fluid Disposal:

- Groundwater disposal methods will vary on a case-by-case basis but may range from:
  - Off-site treatment at private treatment/disposal facilities or public owned treatment facilities
  - On-site treatment at Facility operated facilities
  - Direct discharge to the surrounding ground surface, allowing groundwater infiltration to the underlying subsurface regime
- Decontamination fluids should be segregated and collected separately from wash waters/groundwater containers.

6.3 SUB-SLAB/SOIL VAPOR SAMPLING

The following procedure is an introduction to soil vapor sampling techniques and an outline of field staff responsibilities.

6.3.1 Preparatory Requirements

Prior to collecting the field sample, ensure the stainless-steel oil vapor probe has been installed to the desired depth and sealed completely to the surface using a material such as bentonite. As part of the vapor intrusion evaluation, a tracer gas should be used in accordance with NYSDOH protocols to serve as a quality assurance/quality control (QA/QC) device to verify the integrity of the soil vapor probe seal. A container (box, plastic pail, etc.) will serve to keep the tracer gas in contact with the probe during testing. A portable monitoring device will be used to analyze a sample of soil vapor for the tracer gas prior to sampling. If the tracer sample results show a significant presence of the tracer, the probe seals will be adjusted to prevent infiltration. At the conclusion of the sampling round, tracer monitoring should be performed a second time to confirm the integrity of the probe seals.

6.3.2 Sampling Techniques

Samples will be collected in appropriately sized Summa canisters that have been certified clean by the laboratory and samples will be analyzed by using USEPA Method TO-15. Flow rate for both purging and sampling will not exceed 0.2 L/min. One to three implant volumes shall be purged prior to the collection of any soil-gas samples. A sample log sheet will be maintained summarizing sample identification, date and time of sample collection, sampling depth, identity of samplers, sampling methods and devices, soil vapor purge volumes, volume of the soil vapor extracted, vacuum of canisters before and after the samples are collected, apparent moisture content of the sampling zone, and chain of custody protocols.

6.4 SAMPLE HANDLING AND SHIPPING

Sample management is the continuous care given to each sample from the point of collection to receipt at the analytical laboratory. Good sample management ensures that samples are properly recorded, properly labeled, and not lost, broken, or exposed to conditions which may affect the sample's integrity.

All sample submissions must be accompanied with a chain of custody (COC) document to record sample collection and submission. Personnel performing sampling tasks must check the sample preparation and preservation requirements to ensure compliance with the Quality Assurance Project Plan.

The following sections provide the minimum standards for sample management.

6.4.1 Sample Handling

Prior to entering the field area where sampling is to be conducted, especially at sites with defined exclusion zones, the sampler should ensure that all materials necessary to complete the sampling are on hand. If samples must be maintained at a specified temperature after collection, dedicated coolers and ice must be available for use. Conversely, when sampling in cold weather, proper protection of water samples, trip blanks, and field blanks must be considered. Sample preservation will involve pH adjustment, cooling to 4°C, and sample filtration and preservation.

6.4.2 Sample Labeling

Samples must be properly labeled immediately upon collection.

Note that the data shown on the sample label is the minimum data required. The sample label data requirements are listed below for clarity.

- Project name
- Sample name/number/unique identifier
- Sampler's initials
- Date of sample collection
- Time of sample collection
- Analysis required
- Preservatives

To ensure that samples are not confused, a clear notation should be made on the container with a permanent marker. If the containers are too soiled for marking, the container can be put into a "zip lock" bag which can then be labeled.

All sample names will be as follows:

- Sample unique identifier: Enter the sample name or number. There should be NO slashes, spaces or periods in the date.
- Date: Enter the six-digit date when the sample was collected. Note that for one-digit days, months, and/or years, add zeros so that the format is MMDDYY (050210). There should be NO slashes, dashes, or periods in the date.

The QA/QC samples will be numbered consecutively as collected with a sample name, date and number of samples collected throughout the day (i.e., when multiple QA/QC samples are collected in one day).

Examples of this naming convention are as follows:

Sample Name:	Comments
TB-050202-0001	TRIP BLANK
TB-050202-0002	TRIP BLANK
FD-050202-0001	FIELD DUPLICATE
FD-050202-0002	FIELD DUPLICATE

NOTE: The QA/QC Sample # resets to 0001 EACH DAY, this will avoid having to look back to the previous day for the correct sequential number.

6.4.3 Field Code

The field code will be written in the 'Comments' field on the chain of custody for EVERY sample but will not be a part of the actual sample name. Enter the one/two-character code for type of sample (must be in CAPITALS):

N	Normal Field Sample
FD	Field Duplicate (note sample number (i.e., 0001) substituted for time)
TB	Trip Blank (note sample number (i.e., 0001) substituted for time)
EB	Equipment Blank (note sample number (i.e., 0001) substituted for time)
FB	Field Blank (note sample number (i.e., 0001) substituted for time)
KD	Known Duplicate
FS	Field Spike Sample
MS	Matrix Spike Sample (note on ‘Comments’ field of COC – laboratory to spike matrix.
MD	Matrix Spike Duplicate Sample (note on ‘Comments’ field of COC – laboratory to spike matrix.
RM	Reference Material

The sample labeling – both chain and sample bottles must be EXACTLY as detailed above. In addition, the Field Sample Key for each sample collected must be filled out.

6.4.4 Packaging

Sample container preparation and packing for shipment should be completed in a well-organized and clean area, free of any potential cross contamination. The following is a list of standard guidelines which must be followed when packing samples for shipment.

- Double bag ice in "Zip Lock" bags.
- Double check to ensure trip and temperature blanks have been included for all shipments containing VOCs, or where otherwise specified in the QAPP.
- Enclose the Chain of Custody form in a "Zip Lock" bag.
- Ensure custody seals (two, minimum) are placed on each cooler. Coolers with hinged lids should have both seals placed on the opening edge of the lid. Coolers with "free" lids should have seals placed on opposite diagonal corners of the lid. Place clear tape over custody seals.

- Containers should be wiped clean of all debris/water using paper towels (paper towels must be disposed of with other contaminated materials).
- Clear, wide packing tape should be placed over the sample label for protection.
- Do not bulk pack. Each sample must be individually padded.
- Large glass containers (1 liter and up) require much more space between containers.
- Ice is not a packing material due to the reduction in volume when it melts.

Note: Never store sterile sample containers in enclosures containing equipment which use any form of fuel or volatile petroleum-based product. When conducting sampling in freezing conditions at sites without a heated storage area (free of potential cross contaminants), unused trip blanks should be isolated from coolers immediately after receipt. Trip blanks should be double bagged and kept from freezing.

6.4.5 Chain-of-Custody Records

Chain of custody (COC) forms will be completed for all samples collected. The form documents the transfer of sample containers. The COC record, completed at the time of sampling, will contain, but not be limited to, the sample number, date and time of sampling, and the name of the sampler. The COC document will be signed and dated by the sampler when transferring the samples.

Each sample cooler being shipped to the laboratory will contain a COC form. The cooler will be sealed properly for shipment. The laboratory will maintain a copy for their records. One copy will be returned with the data deliverables package.

The following list provides guidance for the completion and handling of all COCs:

- COCs used should be a Haley & Aldrich standard form or supplied by the analytical laboratory.
- COCs must be completed in black ball point ink only.
- COCs must be completed neatly using printed text.
- If a simple mistake is made, cross out the error with a single line and initial and date the correction.
- Each separate sample entry must be sequentially numbered.
- If numerous repetitive entries must be made in the same column, place a continuous vertical arrow between the first entry and the next different entry.
- When more than one COC form is used for a single shipment, each form must be consecutively numbered using the "Page ___ of ___" format.
- If necessary, place additional instructions directly onto the COC in the Comment Section. Do not enclose separate instructions.
- Include a contact name and phone number on the COC in case there is a problem with the shipment.
- Before using an acronym on a COC, clearly define the full interpretation of your designation [i.e., polychlorinated biphenyls (PCBs)].

6.4.6 Shipment

Prior to the start of the field sampling, the carrier should be contacted to determine if pickup will be at the field site location. If pick-up is not available at the Site, the nearest pick-up or drop off location should be determined. Sample shipments must not be left at unsecured drop locations.

Copies of all shipment manifests must be maintained in the field file.

7. Field Instruments – Use and Calibration

A significant number of field activities involve usage of electronic instruments to monitor for environmental conditions and health and safety purposes. It is imperative the instruments are used and maintained properly to optimize their performance and minimize the potential for inaccuracies in the data obtained. This section provides guidance on the usage, maintenance and calibration of electronic field equipment.

- All monitoring equipment will be in proper working order and operated in accordance with manufacturer's recommendations.

- Field personnel will be responsible for ensuring that the equipment is maintained and calibrated in the field in accordance with manufacturer's recommendations.

- Instruments will be operated only by personnel trained in the proper usage and calibration.

- Personnel must be aware of the range of conditions such as temperature and humidity for instrument operation. Usage of instruments in conditions outside these ranges will only proceed with approval of the Project Manager and/or Health and Safety Officer as appropriate.

- Instruments that contain radioactive source material, such as x-ray fluorescence (XRF) analyzers or moisture-density gauges require specific transportation, handling and usage procedures that are generally associated with a license from the Nuclear Regulatory Commission (NRC) or an NRC-Agreement State. Under no circumstance will operation of such instruments be allowed on site unless by properly authorized and trained personnel, using the proper personal dosimetry badges or monitoring instruments.

7.1 GENERAL PROCEDURE DISCUSSION

Care must be taken to minimize the potential for transfer of contaminated materials to the ground or onto other materials. Regardless of the size or nature of the equipment being decontaminated, the process will utilize a series of steps that involve removal of gross material (dirt, grease, oil etc.), washing with a detergent, and multiple rinsing steps. In lieu of a series of washes and rinse steps, steam cleaning with low-volume, high-pressure equipment (i.e., steam cleaner) is acceptable.

Exploration equipment, and all monitoring equipment in contact with the sampling media must be decontaminated prior to initiating site activities, in between exploration locations to minimize cross-contamination, and prior to mobilizing off site after completion of site work.

The following specific decontamination procedure is recommended for sampling equipment and tools:

- Brush loose soil off equipment;
- Wash equipment with laboratory grade detergent (i.e., Alconox or equivalent);
- Rinse with tap water;
- Rinse equipment with distilled water;
- Allow water to evaporate before reusing equipment; and
- Wrap equipment in aluminum foil when not being used.

7.2 DECONTAMINATION OF MONITORING EQUIPMENT

Because monitoring equipment is difficult to decontaminate, care should be exercised to prevent contamination. Sensitive monitoring instruments should be protected when they are at risk of exposure to contaminants. This may include enclosing them in plastic bags allowing an opening for the sample intake. Ventilation ports should not be covered.

If contamination does occur, decontamination of the equipment will be required; however, immersion in decontamination fluids is not possible. As such, care must be taken to wipe the instruments down with detergent-wetted wipes or sponges, and then with de-ionized water-wetted wipes or sponges.

7.3 DISPOSAL OF WASH SOLUTIONS AND CONTAMINATED EQUIPMENT

All contaminated wash water, rinses, solids and materials used in the decontamination process that cannot be effectively decontaminated (such as polyethylene sheeting) will be containerized and disposed of in accordance with applicable regulations. All containers will be labeled with an indelible marker as to contents and date of placement in the container, and any appropriate stickers required (such as PCBs). Storage of decontamination wastes on site will not exceed 90 days under any circumstances.

Equipment/Materials:

Decontamination equipment and solutions are generally selected based on ease of decontamination and disposability.

- Polyethylene sheeting;
- Metal racks to hold equipment;
- Soft-bristle scrub brushes or long-handle brushes for removing gross contamination and scrubbing with wash solutions;
- Large galvanized wash tubs, stock tanks, or wading pools for wash and rinse solutions;
- Plastic buckets or garden sprayers for rinse solutions;
- Large plastic garbage cans or other similar containers lined with plastic bags can be used to store contaminated clothing;
- Contaminated liquids and solids should be segregated and containerized in DOT-approved plastic or metal drums, appropriate for offsite shipping/disposal if necessary.

8. Investigation Derived Waste Disposal

8.1 RATIONALE/ASSUMPTIONS

This procedure applies to the disposition of investigation derived waste (IDW) including soils and/or groundwater. IDW is dealt with the following "Best Management Practices" and is not considered a listed waste due to the lack of generator knowledge concerning chemical source, chemical origin, and timing of chemical introduction to the subsurface.

Consequently, waste sampling and characterization is performed to determine if the wastes exhibit a characteristic of hazardous waste. The disposal of soil cuttings, test pit soils and/or purged groundwater will be reviewed on a case by case basis prior to initiation of field activities. Two scenarios typically exist:

- When no information is available in the area of activity or investigation, and impacted media/soils are identified. Activities such as new construction and /or maintenance below grade may encounter environmental conditions that were unknown.
- Disposal Required/Containerization Required – When sufficient Site information regarding the investigative Site conditions warrant that all materials handled will be contained and disposed.

If a known listed hazardous and/or characteristically hazardous waste/contaminated environmental media is being handled, then handling must be performed in accordance with RCRA Subtitle C (reference 2, Part V, Section 1(a),(b),(c)).

The following outlines the waste characterization procedures to be employed when IDW disposal is required.

The following procedure describes the techniques for characterization of IDW for disposal purposes. IDW may consist of soil cuttings (augering, boring, well installation soils, test pit soils), rock core or rock flour (from coring, reaming operations), groundwater (from well development, purging and sampling activities), decontamination fluids, personal protective equipment (PPE), and disposal equipment (DE).

8.2 PROCEDURE

The procedures for handling and characterization of field activity generated wastes are:

A.) Soil Cuttings - Soils removed from boring activities will be contained within an approved container, suitable for transportation and disposal.

  - Once placed into the approved container, any free - liquids (i.e., groundwater) will be removed for disposal as waste fluids or solidified within the approved container using a solidification agent such as Speedy Dri (or equivalent).
  - Contained soils will be screened for the presence of Volatile Organic Compounds (VOCs), using a Photo ionization detector (PID); this data will be logged for future reference.

- Once screened, full and closed; the container will be labeled and placed into the container storage area. At a minimum, the following information will be shown on each container label: date of filling/generation, Site name, source of soils (i.e., borehole or well), and contact.
- Prior to container closure, representative samples from the containers will be collected for waste characterization purposes and submitted to the project laboratory.
- Typically, at a location where an undetermined site-specific parameter group exists, sampling and analysis may consist of the full RCRA Waste Characterization (ignitability, corrosivity, reactivity, toxicity), or a subset of the above based upon data collected, historical information, and generator knowledge.

B.) Groundwater - purging, and sampling groundwater, which requires disposal, will be contained.

- Containment may be performed in 55-gallon drums, tanks suitable for temporary storage (i.e., Nalgene tanks 500 to 1,000 gallons) or if large volumes of groundwater are anticipated, tanker trailer (5,000 to 10,000 gallons ±), or drilling "Frac" tanks may be utilized (20,000 gallons ±). In all cases the container/tank used for groundwater storage must be clean before use such that cross contamination does not occur.

C.) Decon Waters/Decon Fluids - Decon waters and/or fluids will be segregated, contained, and disposed accordingly.

- Decon waters may be disposed of with the containerized groundwater once analytical results have been acquired.

D.) PPE/DE – A number of disposal options exists for spent PPE/DE generated from investigation tasks. The options typically employed are:

- Immediately disposed of within on-Site dumpster/municipal trash; or
- If known to be contaminated with RCRA hazardous waste, dispose off-Site at a RCRA Subtitle C facility.
- Spent Solvent/Acid Rinses - The need for sampling must be determined in consultation with the waste management organization handling the materials. If known that only the solvent and/or acids are present, then direct disposal/treatment using media specific options may be possible without sampling (i.e., incineration).
- PPE/DE – Typically not sampled and included with the disposal of the solid wastes.

Equipment/Materials:

- Sample spoons, trier, auger,
- Sample mixing bowl,
- Sampling bailer, or pump,
- Sample glassware.

References

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3. ASTM 4750 Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well)
4. ASTM D6000 Guide for Presentation of Water Level Information from Ground Water Sites
5. ASTM D5474: Guide for Selection of Data Elements for Groundwater Investigations
6. ASTM D4696: Guide for Pore-liquid Sampling from the Vadose Zone
7. ASTM D5979: Guide for Conceptualization and Characterization of Groundwater Systems
8. ASTM D5903: Guide for Planning and Preparing for a Groundwater Sampling Event
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10. ASTM D6001: Standard Guide for Direct Push Water Sampling for Geo-environmental Investigations.
11. ASTM (1991), Standard D1452-80, "Practice for Soil Investigation and Sampling by Auger Borings", Annual Book of ASTM Standard, Section 4, Volume 04.08.
12. ASTM Standards on Environmental Sampling (1995), Standard D 2488-93, "Standard Practice for Description and Identification of Soils (Visual-Manual Procedure)"
13. ASTM Standards on Environmental Sampling (1995), Standard D 4700-91, "Guide for Soil Sampling from the Vadose Zone".
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19. New York State Department of Environmental Conservation, Division of Environmental Remediation, Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC Part 375 Remedial Program (January 2021).
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21. USEPA Office of Solid Waste- SW846 Chapter 9 Sampling Plan, Chapter 10 Sampling Methods (September 1986).
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24. USEPA (1988), Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA, OSWER-9950.1.
25. USEPA RCRA - Guidance and Policies: Management of Remediation Waste Under RCRA (October 1998).
26. USEPA RCRA - Management of Contaminated Media (October 1998).
27. USEPA CERCLA Guidance (Options Relevant to RCRA Facilities): Guide to Management of Investigation - Derived Wastes (January 1992).
28. USEPA: Low-flow (Minimal Drawdown) Groundwater Sampling Procedures (EPA/540/S-95/504)
29. USEPA: RCRA Groundwater Monitoring: Draft Technical guidance (EPA/530 R 93 001)
30. The Occupational Safety and Health Administration's (OSHA) Excavation and Trenching Standard Title 29 of the Code of Federal Regulation (CFR) Part 1926.650.

APPENDIX A

Field Forms

HALEY ALDRICH

EQUIPMENT CALIBRATION LOG

Project: ____________________

Location: ____________________

Model Name: ____________________

Model Number: ____________________ **Serial Number:** ____________________

Cal. Standards: ____________________

Instruments will be calibrated in accordance with manufacturer's recommendations at least once per day.

Date	Time	Calibration Satandard Solution	Calibration Result	Calibrated by

Other Comments: ____________________

Groundwater Field Sampling Form

Location:

Job Number: ____________________
Well ID: ____________________
Field Sampling Crew: ___________

Date: ____________________
Start Time: ____________________
Finished Time: ____________________

Initial Depth to Water: ____________________
Well Depth: ____________________
Depth to top of screen: ____________________
Depth to bottom of screen: ____________________
Depth of Pump Intake: ____________________

Purging Device: ________________
Tubing present in well? __________
Tubing type: __________________

Time Elapsed (24 hour)	Depth to Water (from casing)	Pump Setting (ml/min or gal/min)	Purge Rate (ml/min or gal/min)	Cumulative Purge Volume (liters or gallons)	Temperature (degrees Celsius)	pH	Conductivity us/cm	Dissolved Oxygen (mg/L)	Turbidity (NTU)	ORP/eH (mv)	Comments

Comments:

HALEY ALDRICH

SAMPLE IDENTIFICATION KEY

Page of

PROJECT ________________ **H&A FILE NO.** ____________

LOCATION ________________ **PROJECT MGR.** ____________

CLIENT ________________

CONTRACTOR ________________

Sample ID	Parent Sample ID	Location ID	Sample Date	Sample Time (military)	Sample Type Code	Filtered (Water Only T/D/N)	Composite Y/N	Soil Type	Depth To Top Of Sample	Depth To Bottom Of Sample	C.O.C. Number	Notes	Collected By

Notes:

Common Sample Type Codes:

N Normal Environmental Samp	WG Groundwater	WS Surface Water	SO Soil	GS Soil Gas	SE Sediment
WQ Water for Quality Control	FD Field Duplicate	EB Equipment Blank	TB Trip Blank	MS Matris Spike	MSD Matrix Spike Duplicate

see Memorandum dated 08/08/05 from Melanie Satanek "Sample Labeling for Submission to Analytical Laboratory" for less common codes

HALEY ALDRICH

DAILY FIELD REPORT

Page of

Project		**Report No.**	
Location		**Date**	
Client		**Page**	of
Contractor		**File No.**	
Weather		**Temperature**	

Field Representative(s)	**Time on site**	**Report/Travel/Other**	**Total hours**

Distribution:

Haley & Aldrich, Inc.

Form 4004

GEOPROBE BORING REPORT

BORING NO.

Page 1 of

PROJECT			
LOCATION		PROJECT MGR.	
CLIENT		FIELD REP.	
CONTRACTOR		DATE STARTED	
DRILLER		DATE FINISHED	

Elevation ft.	Datum	Boring Location

Item	Casing	Sampler	Core Barrel	Rig Make & Model			Hammer Type	Drilling Mud	Casing Advance
Type				☐ Truck	☐ Tripod	☐ Cat-Head	☐ Safety	☐ Bentonite	Type Method Depth
Inside Diameter (in.)				☐ ATV	☐ Geoprobe	☐ Winch	☐ Doughnut	☐ Polymer	
Hammer Weight (lb.)				☐ Track	☐ Air Track	☐ Roller Bit	☐ Automatic	☐ None	
Hammer Fall (in.)				☐ Skid	☐ ________	☐ Cutting Head	Drilling Notes:		

Depth (ft.)	Casing Blows	Sampler Blows per 6 in.	Sample No. & Recovery (in.)	Sample Depth (ft)	Elev./ Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water
Date					

Sample ID

- **O** Open End Rod
- **T** Thin Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Geoprobe

Summary

Overburden (Linear ft.) ________
Rock Cored (Linear ft.) ________
Number of Samples ________

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification

Form #3000

APPENDIX C

GPR Findings Report

ADVANCED GEOLOGICAL SERVICES

Headquarters in Malvern, PA
Offices in Chillicothe, OH and
Moraga, CA

October 21, 2021
Reference: 21-262-1

Ms. Janelle Cooley
P.W. Grosser Consulting
630 Johnson Avenue, Suite 7
Bohemia, NY 11716

Subject: Subsurface Investigation Results
91 Bruckner Boulevard
Bronx, New York

Dear Ms. Cooley:

Advanced Geological Services (AGS) presents this letter to P. W. Grosser Consultants (PWG) summarizing the subsurface investigation completed by AGS on October 8, 2021 at 91 Bruckner Boulevard, Bronx, New York.

The objectives of the subsurface investigation were:

- Identify potential underground utilities that could interfere with drilling activities at three sampling locations.
- Search a portion of the building interior for the presence of up to three underground storage tanks (USTs).
- Verify the presence of an abandoned UST located in basement of the building.

To achieve the project objective, AGS utilized a combination of the radio frequency utility locating method and the ground penetrating radar (GPR) method.

Methods

Radio Frequency (RF) Utility Locating Methods

The investigation areas were inspected using a RF utility locating system (also known as a precision utility locator (PUL)) to identify and trace potential electrical, telecommunication, water, and other potential identifiable utilities.

AGS utilized a Radiodetection RD4000 RF utility locating instrument. This instrument consists of a receiver/tracer and a remote transmitter which operates at multiple radio-frequencies (RF) ranging from 8 kHz to 65 kHz. The receiver unit detects the transmitted RF signals as well as standard 60 Hz electrical power lines and broad-band RF signals when operated in passive detection modes. This utility tracing instrument is an analog device which provides visual and audible feedback to the operator when a utility coupled with the transmitted signal is crossed. The transmitter produces a radio-frequency signal in the utility to be traced by either induction coupling or direct hook-up. The receiver output varies an audible pitch and visual feedback depending upon how far the utility is from the receiver. By carefully adjusting the gain of the receiver it is possible to determine the location of the utility and to separate it from adjacent utilities.

The investigation areas were scanned using passive 60 Hz and the broad-band RF detection modes to identify potential utilities that may be present. Direct hook-up and induction tracing methods were also used when possible. Identified utilities were marked on the ground surface with chalk or spray paint.

Ground Penetrating Radar (GPR) Method

The ground penetrating radar (GPR) method was used to search for metallic and non-metallic utilities and other targets of interest surrounding proposed drilling locations, to search for potential USTs, and to verify the presence of the abandoned UST located in the basement of the building.

The GPR method is based upon the transmission of repetitive, radio-frequency electromagnetic (EM) pulses into the subsurface. When the transmitted energy of the down-going wave contacts an interface of dissimilar electrical character, part of the energy is returned to the surface in the form of a reflected signal. This reflected signal is detected by a receiving transducer and is displayed on the screen of the GPR unit as well as being recorded on the internal hard-drive. The received GPR response remains constant as long as the electrical contrast between media is present and constant. Lateral or vertical changes in the electrical properties of the subsurface result in equivalent changes in the GPR response. The system records a continuous image of the subsurface by plotting two-way travel time of the reflected EM pulse versus distance traveled along the ground surface. Two-way travel time values are then converted to depth using known soil velocity functions.

A GSSI SIR-3000 GPR system and a 400 megahertz (MHz) antenna were used with a recording window of 60 nanoseconds (ns) to provide depth of penetration of up to approximately 10 feet under ideal field conditions. High conductivity soil, some conductive ballast gravels, and de-icing salt can strongly attenuate GPR signals, thereby decreasing the effective depth of investigation of the GPR system.

GPR data were collected in an approximate grid pattern surrounding each proposed drilling location to identify potential utilities. Locations of identified utilities were marked on the ground surface with chalk or spray paint.

Results and Discussion

A total of three proposed drilling locations were investigated to identify potential underground utilities or other drilling hazards that could interfere with completion of the borings. The locations of the proposed borings are shown on Figure 1 (attached to end of document). A minimum of 10 feet radially surrounding each proposed drilling location was investigated, space permitting, for the presence of underground utilities or other identifiable potential drilling hazards. If any identified utilities were too close to the initial proposed drilling location, the drilling location was adjusted to an area free of identified utilities.

A 40 foot by 80 foot area located inside 91 Bruckner Blvd. was investigated using the GPR method to identify any potential USTs (Figure 1). GPR traverses were collected in a grid pattern, with traverses spaced 5 feet apart in both the X and Y grid directions. The maximum achievable depth of investigation using the GPR system was approximately 5 feet within this area. No USTs were identified during the investigation of this area.

The GPR method was also used to verify the presence of a UST located in the basement of the building. A metal plate was covering most of the portion of the floor where the abandoned UST was situated. GPR methods cannot penetrated solid metal, but AGS was able to see a small portion of the UST that extended beyond the metal plate (Figure 2).

Figure 2. Abandoned UST beneath metal plate.

During the field investigation and upon completion of the investigation the results were reviewed and discussed with the on site PWG representative.

Closing

All investigation data and field notes collected as a part of this investigation will be archived at the AGS office. The data collection and interpretation methods used in this investigation are consistent with standard practices applied to similar subsurface investigations. The correlation of geophysical responses with probable subsurface features is based on the past results of similar surveys although it is possible that some variation could exist at this site. Due to the nature of subsurface imaging data (i.e. RF utility locating, GPR) , no guarantees can be made or implied regarding the presence or absence of additional objects or targets beyond those identified.

If you have any questions regarding the results of this field investigation, please contact me at 610-722-5500. It was a pleasure working with you on this project and we look forward to being able to provide you with sub-surface imaging services in the future.

Sincerely,

Donald Jagel
Senior Scientist/Branch Manager

Advanced Geological Services, Inc.
280½ East Main Street
Chillicothe, OH 45601

attachment: Figure 1

NOTES:

1) Proposed drilling locations were cleared of identifiable utilities using a combination of a radio frequency utility locating system (RD-4000) and ground penetrating radar (GPR) (GSSI SIR3000) system. All identified utilities were marked on site with chalk or spray paint.
2) The GPR method was used to search for the presence of identifiable USTs that could be present within a 40 foot by 80 foot area inside of 91 Bruckner Blvd. GPR traverses were collected in a 5 foot by 5 foot grid pattern within the survey area. The maximum depth of investigation was approximately 5 feet. No USTs were identified within the survey area.
3) Base aerial photograph was taken on 8/16/2020, and is from Google Earth.
4) This work was not completed by a licensed surveyor, and locations of items shown should be considered approximate, and for illustrative purposes only. The items shown on this figure may not be all inclusive. AGS does not warrant the fact that additional buried features/utilities may be present which could not be identified by AGS personnel during this investigation.

LEGEND

⊕ Proposed Drilling Location

Area searched for USTs using GPR

ADVANCED GEOLOGICAL SERVICES	Aerial Photograph of 91 Bruckner Boulevard Showing Proposed Drilling Locations and Area that was Searched for Potential USTs Using GPR Methods
	LOCATION: 91 Bruckner Boulevard Bronx, New York
	CLIENT: P. W. Grosser Consultants
PROJECT #: 21-262-1	ADVANCED GEOLOGICAL SERVICES, INC.
DATE: 10/21/2021	DRAWN BY: D. Jagel — Approved By: D.J.
	FIGURE 1

APPENDIX D
Quality Assurance Project Plan

www.haleyaldrich.com

QUALITY ASSURANCE PROJECT PLAN
91 BRUCKNER BOULEVARD
BRONX, NEW YORK

by
Haley & Aldrich of New York
New York, New York

for
91 Bruckner Blvd LLC
162 Manhattan Avenue
Brooklyn, New York 11206

File No. 0204520
January 2023

Executive Summary

This Quality Assurance Project Plan outlines the scope of the quality assurance and quality control activities associated with the site monitoring activities associated with the Remedial Investigation Work Plan for 91 Bruckner Boulevard in the Bronx, New York (Site).

Protocols for sample collection, sample handling and storage, chain-of-custody procedures, and laboratory and field analyses are described herein or specifically referenced to related project documents.

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1. Project Description

This Quality Assurance Project Plan (QAPP) has been prepared as a component of the Remedial Investigation Work Plan (RIWP) for 91 Bruckner Boulevard in Bronx, New York (Site).

1.1 PROJECT OBJECTIVES

The primary objective for data collection activities is to collect sufficient data necessary to characterize the subsurface conditions at the Site and determine the nature and extent of contamination.

1.2 SITE DESCRIPTION AND HISTORY

The general Site description and Site history is provided in the Site Description and History Summary that accompanies the RIWP appended to the Brownfield Cleanup Program application for the Site and incorporated herein by reference.

1.3 LABORATORY PARAMETERS

The laboratory parameters for soil include:

- Target Compound List volatile organic compounds (VOCs) using EPA method 8260B
- Target Compound List semi-volatile organic compounds (SVOCs) using EPA method 8270C
- Total Analyte List (TAL) Metals using EPA method 6010
- TCL Pesticides using EPA method 8081B
- Polychlorinated biphenyls (PCBs) using EPA method 8082
- Per- and polyfluoroalkyl substances (PFAS) using EPA method 1633
- 1,4-Dioxane using EPA method 8270
- Lead using EPA method 1311

The laboratory parameters for groundwater include:

- Target Compound List VOCs using EPA method 8260C
- Target Compound List SVOCs using EPA method 8270C
- TAL Metals using EPA method 6010
- PFAS using EPA method 1633
- 1,4-Dioxane using EPA method 8270 SIM

Note: 1,4-Dioxane and PFAS sampling techniques will be conducted following the NYSDEC Collection of Groundwater Samples for PFAS from Monitoring Wells Sample Protocol.

During the collection of groundwater samples, pH, specific conductivity, temperature, dissolved oxygen (DO), and oxidation/reduction potential (ORP) will be measured until stabilized.

The analytical laboratory parameters for soil vapor samples include:

- VOCs using EPA method TO-15

Laboratory parameters for disposal samples will be determined by the disposal facility after an approved facility has been determined.

1.4 SAMPLING LOCATIONS

The RIWP provides the locations of soil borings, soil vapor implants and groundwater monitoring wells that will be sampled (as applicable).

2. Project Organization and Responsibilities

This section defines the roles and responsibilities of the individuals who will perform the RIWP monitoring activities. A NYSDOH certified analytical laboratory will perform the analyses of environmental samples collected at the Site.

2.1 MANAGEMENT RESPONSIBILITIES

The Project Manager is responsible for managing the implementation of the RIWP/ and monitoring and coordinating the collection of data. The Project Manager is responsible for technical quality control (QC) and project oversight. The Project Manager responsibilities include the following:

- Acquire and apply technical and corporate resources as needed to ensure performance within budget and schedule restraints;
- Review work performed to ensure quality, responsiveness, and timeliness;
- Communicate with the client point of contact concerning the progress of the monitoring activities;
- Assure corrective actions are taken for deficiencies cited during audits of RIWP monitoring activities; and,
- Assure compliance with Site health and safety plan.

2.2 QUALITY ASSURANCE RESPONSIBILITIES

The Quality Assurance (QA) team will consist of a QA Officer and the Data Validation Staff. QA responsibilities are described as follows:

2.2.1 Quality Assurance Officer

The QA Officer reports directly to the Project Manager and will be responsible for overseeing the review of field and laboratory data. Additional responsibilities include the following:

- Assure the application and effectiveness of the QAPP by the analytical laboratory and the project staff;
- Provide input to the Project Manager as to corrective actions that may be required as a result of the above-mentioned evaluations; and,
- Prepare and/or review data validation and audit reports.

The QA Officer will be assisted by the Data Validation staff in the evaluation and validation of field and laboratory generated data.

2.2.2 Data Validation Staff

The Data Validation Staff will be independent of the laboratory and familiar with the analytical procedures performed. The validation will include a review of each validation criterion as prescribed by the guidelines presented in Section 9.2 of this document and be presented in a Data Usability Summary Report (DUSR) for submittal to the QA Officer.

2.3 LABORATORY RESPONSIBILITIES

Laboratory services in support of the RIWP monitoring include the following personnel:

2.3.1 Laboratory Project Manager

The Laboratory Project Manager will report directly to the QA Officer and Project Manager and will be responsible for ensuring all resources of the laboratory are available on an as-required basis. The Laboratory Project Manager will also be responsible for the approval of the final analytical reports.

2.3.2 Laboratory Operations Manager

The Laboratory Operations Manager will report to the Laboratory Project Manager and will be responsible for coordinating laboratory analysis, supervising in-house chain-of-custody reports, scheduling sample analyses, overseeing data review and overseeing preparation of analytical reports.

2.3.3 Laboratory QA Officer

The Laboratory QA Officer will have sole responsibility for review and validation of the analytical laboratory data. The Laboratory QA Officer will provide Case Narrative descriptions of any data quality issues encountered during the analyses conducted by the laboratory. The QA Officer will also define appropriate QA procedures, overseeing QA/QC documentation.

2.3.4 Laboratory Sample Custodian

The Laboratory Sample Custodian will report to the Laboratory Operations Manager and will be responsible for the following:

- Receive and inspect the incoming sample containers;
- Record the condition of the incoming sample containers;
- Sign appropriate documents;
- Verify chain-of-custody and its correctness;
- Notify the Project Manager and Operations Manager of sample receipt and inspection;
- Assign a unique identification number and enter each into the sample receiving log;
- Initiate transfer of samples to laboratory analytical sections; and,
- Control and monitor access/storage of samples and extracts.

2.3.5 Laboratory Technical Personnel

The Laboratory Technical Personnel will have the primary responsibility in the performance of sample analysis and the execution of the QA procedures developed to determine the data quality. These activities will include the proper preparation and analysis of the project samples in accordance with the laboratory's Quality Assurance Manual (QAM) and associated Standard Operating Procedures (SOP).

2.4 FIELD RESPONSIBILITIES

2.4.1 Field Coordinator

The Field Coordinator is responsible for the overall operation of the field team and reports directly to the Project Manager. The Field Coordinator works with the project Health & Safety Officer (HSO) to conduct operations in compliance with the project Health & Safety Plan (HASP). The Field Coordinator will facilitate communication and coordinate efforts between the Project Manager and the field team members.

Other responsibilities include the following:

- Develop and implement field-related work plans, ensuring schedule compliance, and adhering to management-developed project requirements;
- Coordinate and manage field staff;
- Perform field system audits;
- Oversee QC for technical data provided by the field staff;
- Prepare and approve text and graphics required for field team efforts;
- Coordinate and oversee technical efforts of subcontractors assisting the field team;
- Identify problems in the field; resolve difficulties in consultation with the Project QAO, and Project Manager; implement and document corrective action procedures; and,
- Participate in preparation of the final reports.

2.4.2 Field Team Personnel

Field Team Personnel will be responsible for the following:

- Perform field activities as detailed in the RIWP and in compliance with the Field Sampling Plan (FSP) and QAPP.
- Immediately report any accidents and/or unsafe conditions to the Site HSO and take reasonable precautions to prevent injury.

3. Sampling Procedures

The FSP provides the SOPs for sampling required by the RIWP. Sampling will be conducted in general accordance with the NYSDEC Technical Guidance for Site Investigation and Remediation (DER-10) and the Sampling, Analysis and Assessment of PFAS under NYSDEC Part 375 Remedial Program when applicable.

3.1 SAMPLE CONTAINERS

Sample containers for each sampling task will be provided by the laboratory performing the analysis. The containers will be cleaned by the manufacturer to meet or exceed the analyte specifications established in the USEPA, "Specifications and Guidance for Obtaining Contaminant-Free Sample Containers", April 1992, OSWER Directive #9240.0-0.5A. Certificates of analysis for each lot of sample containers used will be maintained by the laboratory.

The appropriate sample containers, preservation method, maximum holding times, and handling requirements for each sampling task are provided in Table I.

3.2 SAMPLE LABELING

Each sample will be labeled with a unique sample identifier that will facilitate tracking and cross-referencing of sample information. Equipment rinse blank and field duplicate samples also will be numbered with a unique sample identifier to prevent analytical bias of field QC samples.

Refer to the FSP for the sample labeling procedures.

3.3 FIELD QC SAMPLE COLLECTION

3.3.1 Field Duplicate Sample Collection

3.3.1.1 Water Samples

Field duplicate samples will be collected by filling the first sample container to the proper level and sealing and then repeated for the second set of sample container.

1. The samples are properly labeled as specified in Section 3.2.
2. Steps 1 through 4 are repeated for the bottles for each analysis. The samples are collected in order of decreasing analyte volatility as detailed in Section 3.3.1.
3. Chain-of-custody documents are executed.
4. The samples will be handled as specified in Table I.

3.3.1.2 Soil Samples

Soil field duplicates will be collected as specified in the following procedure:

1. Soils will be sampling directly from acetate liners.

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2. Soil for VOC analysis will be removed from the sampling device as specified in the FSP.
3. Soil for non-VOC analysis will be removed from the sampling device and collected into clean laboratory provided containers.

4. Custody Procedures

Sample custody is addressed in three parts: field sample collection, laboratory analysis and final project files. Custody of a sample begins when it is collected by or transferred to an individual and ends when that individual relinquishes or disposes of the sample.

A sample is under custody if:

1. The item is in actual possession of a person;
2. The item is in the view of the person after being in actual possession of the person;
3. The item was in actual possession and subsequently stored to prevent tampering; or
4. The item is in a designated and identified secure area.

4.1 FIELD CUSTODY PROCEDURES

Field personnel will keep written records of field activities on applicable preprinted field forms or in a bound field notebook to record data collecting activities. These records will be written legibly in ink and will contain pertinent field data and observations. Entry errors or changes will be crossed out with a single line, dated, and initialed by the person making the correction. Field forms and notebooks will be periodically reviewed by the Field Coordinator.

The beginning of each entry in the logbook or preprinted field form will contain the following information:

- Date;
- Start time;
- Weather;
- Names of field personnel (including subcontractors);
- Level of personal protection used at the Site; and,
- Names of all visitors and the purpose of their visit.

For each measurement and sample collected, the following information will be recorded:

- Detailed description of sample location;
- Equipment used to collect sample or make measurement and the date equipment was calibrated;
- Time sample was collected;
- Description of the sample conditions;
- Depth sample was collected (if applicable);
- Volume and number of containers filled with the sample; and,
- Sampler's identification.

4.1.1 Field Procedures

The following procedure describes the process to maintain the integrity of the samples:

- Upon collection samples are placed in the proper containers. In general, samples collected for organic analysis will be placed in pre-cleaned glass containers and samples collected for inorganic analysis will be placed in pre-cleaned plastic (polyethylene) bottles. Refer to the FSP for sample packaging procedures.

- Samples will be assigned a unique sample number and will be affixed to a sample label. Refer to the FSP for sample labeling procedures.

- Samples will be properly and appropriately preserved by field personnel in order to minimize loss of the constituent(s) of interest due to physical, chemical or biological mechanisms.

- Appropriate volumes will be collected to ensure that the appropriate reporting limits can be successfully achieved and that the required QC sample analyses can be performed.

4.1.2 Transfer of Custody and Shipment Procedures

- A chain-of-custody (COC) record will be completed at the time of sample collection and will accompany each shipment of project samples to the laboratory. The field personnel collecting the samples will be responsible for the custody of the samples until the samples are relinquished to the laboratory. Sample transfer will require the individuals relinquishing and receiving the samples to sign, date and note the time of sample transfer on the COC record.

- Samples will be shipped or delivered in a timely fashion to the laboratory so that holding times and/or analysis times as prescribed by the methodology can be met.

- Samples will be transported in containers (coolers) which will maintain the refrigeration temperature for those parameters for which refrigeration is required in the prescribed preservation protocols.

- Samples will be placed in an upright position and limited to one layer of samples per cooler. Additional bubble wrap or packaging material will be added to fill the cooler. Shipping containers will be secured with strapping tape and custody tape for shipment to the laboratory.

- When samples are split with the NYSDEC representatives, a separate chain-of-custody will be prepared and marked to indicate with whom the samples are shared. The person relinquishing the samples will require the representative's signature acknowledging sample receipt.

- If samples are sent by a commercial carrier, a bill of lading will be used. A copy of the bill of lading will be retained as part of the permanent record. Commercial carriers will not sign the custody record as long as the custody record is sealed inside the sample cooler and the custody tape remains intact.

- Samples will be picked up by a laboratory courier or transported to the laboratory the same day they are collected unless collected on a weekend or holiday. In these cases, the samples will be stored in a secure location until delivery to the laboratory. Additional ice will be added to the cooler as needed to maintain proper preservation temperatures.

4.2 LABORATORY CHAIN-OF-CUSTODY PROCEDURES

A sample custodian will be designated by the laboratory and will have the responsibility to receive all incoming samples. Once received, the custodian will document if the sample is received in good condition (i.e., unbroken, cooled, etc.) and that the associated paperwork, such as chain-of-custody forms have been completed. The custodian will sign the chain-of-custody forms.

The custodian will also document if sufficient sample volume has been received to complete the analytical program. The sample custodian will then place the samples into secure, limited access storage (refrigerated storage, if required). The sample custodian will assign a unique number to each incoming sample for use in the laboratory. The unique number will then be entered into the sample-receiving log with the verified time and date of receipt also noted.

Consistent with the analyses requested on the chain-of-custody form, analyses by the laboratory's analysts will begin in accordance with the appropriate methodologies. Samples will be removed from secure storage with internal chain-of-custody sign-out procedures followed.

4.3 STORAGE OF SAMPLES

Empty sample bottles will be returned to secure and limited access storage after the available volume has been consumed by the analysis. Upon completion of the entire analytical work effort, samples will be disposed of by the sample custodian. The length of time that samples are held will be at least thirty (30) days after reports have been submitted. Disposal of remaining samples will be completed in compliance with all Federal, State and local requirements.

4.4 FINAL PROJECT FILES CUSTODY PROCEDURES

The final project files will be the central repository for all documents with information relevant to sampling and analysis activities as described in this QAPP. The Haley & Aldrich Project Manager will be the custodian of the project file. The project files including all relevant records, reports, logs, field notebooks, pictures, subcontractor reports and data reviews will be maintained in a secured, limited access area and under custody of the Project Director or his designee.

The final project file will include the following:

- Project plans and drawings;
- Field data records;
- Sample identification documents and soil boring/monitoring well logs;
- All chain-of-custody documentation;
- Correspondence;
- References, literature;
- Laboratory data deliverables;
- Data validation and assessment reports;
- Progress reports, QA reports; and,
- A final report.

The laboratory will be responsible for maintaining analytical logbooks, laboratory data and sample chain of custody documents. Raw laboratory data files and copies of hard copy reports will be inventoried and maintained by the laboratory for a period of six years at which time the laboratory will contact the Haley & Aldrich Project Manager regarding the disposition of the project related files.

5. Calibration Procedures and Frequency

5.1 FIELD INSTRUMENT CALIBRATION PROCEDURES

Several field instruments will be used for both on-site screening of samples and for health and safety monitoring, as described in the HASP. On-site air monitoring for health and safety purposes may be accomplished using a vapor detection device, such as a Photo-ionization Detector (PID).

Field instruments will be calibrated at the beginning of each day and checked during field activities to verify performance. Instrument specific calibration procedures will be performed in accordance with the instrument manufacturer's requirements.

5.2 LABORATORY INSTRUMENT CALIBRATION PROCEDURES

Reference materials of known purity and quality will be utilized for the analysis of environmental samples. The laboratory will carefully monitor the preparation and use of reference materials including solutions, standards, and reagents through well-documented procedures.

All solid chemicals and acids/bases used by the laboratory will be rated as "reagent grade" or better. All gases will be "high" purity or better. All Standard Reference Materials (SRMs) or Performance Evaluation (PE) materials will be obtained from approved vendors of the National Institute of Standards and Technology (formerly National Bureau of Standards), the U.S. EPA Environmental Monitoring Support Laboratories (EMSL), or reliable Cooperative Research and Development Agreement (CRADA) certified commercial sources.

6. Analytical Procedures

Analytical procedures to be utilized for analysis of environmental samples will be based on referenced USEPA analytical protocols and/or project specific SOP.

6.1 FIELD ANALYTICAL PROCEDURES

Field analytical procedures include the measurement of pH, temperature, ORP, DO and specific conductivity during sampling of groundwater, and the qualitative measurement of VOC during the collection of soil samples.

6.2 LABORATORY ANALYTICAL PROCEDURES

Laboratory analyses will be based on the USEPA methodology requirements promulgated in:

- "Test Methods for Evaluating Solid Waste," SW-846 EPA, Office of Solid Waste, and promulgated updates, 1986.

6.2.1 List of Project Target Compounds and Laboratory Detection Limits

The laboratory reporting limits (RLs) and associated method detection limits (MDLs) for the target analytes and compounds for the environmental media to be analyzed are presented in Table I. MDLs have been experimentally determined by the project laboratory using the method provided in 40 CFR, Part 136 Appendix B.

Laboratory parameters for soil samples are listed in the RIWP. Laboratory parameters for disposal samples will be determined by the disposal facility after an approved facility has been determined.

6.2.2 List of Method Specific Quality Control Criteria

The laboratory SOPs include a section that presents the minimum QC requirements for the project analyses. Section 7.0 references the frequency of the associated QC samples for each sampling effort and matrix.

7. Internal Quality Control Checks

This section presents the internal QC checks that will be employed for field and laboratory measurements.

7.1 FIELD QUALITY CONTROL

7.1.1 Field Blanks

Internal QC checks will include analysis of field blanks to validate equipment cleanliness. Whenever possible, dedicated equipment will be employed to reduce the possibility of cross-contamination of samples.

7.1.2 Trip Blanks

Trip blanks samples will be prepared by the project laboratory using ASTM Type II or equivalent water placed within pre-cleaned 40 milliliter (ml) VOC vials equipped with Teflon septa. Trip blanks will accompany each sample delivery group (SDG) of environmental samples collected for analysis of VOCs.

Trip blank samples will be placed in each cooler that stores and transports project samples that are to be analyzed for VOCs.

7.2 LABORATORY PROCEDURES

Procedures which contribute to maintenance of overall laboratory quality assurance and control include appropriately cleaned sample containers, proper sample identification and logging, applicable sample preservation, storage, and analysis within prescribed holding times, and use of controlled materials.

7.2.1 Field Duplicate Samples

The precision or reproducibility of the data generated will be monitored through the use of field duplicate samples. Field duplicate analysis will be performed at a frequency of 1 in 20 project samples.

Precision will be measured in terms of the absolute value of the relative percent difference (RPD) as expressed by the following equation:

$$RPD = [|R1-R2|/[(R1+R2)/2]] \times 100\%$$

Acceptance criteria for duplicate analyses performed on solid matrices will be 100% and aqueous matrices will be 35%. RPD values outside these limits will require an evaluation of the sampling and/or analysis procedures by the project QA Officer and/or laboratory QA Director. Corrective actions may include re-analysis of additional sample aliquots and/or qualification of the data for use.

7.2.2 Matrix Spike Samples

Ten percent of each project sample matrix for each analytical method performed will be spiked with known concentrations of the specific target compounds/analytes.

The amount of the compound recovered from the sample compared to the amount added will be expressed as a percent recovery. The percent recovery of an analyte is an indication of the accuracy of an analysis within the site-specific sample matrix. Percent recovery will be calculated for matrix spike and matrix spike duplicate (MS/MSD) samples using the following equation.

$$\% \; Recovery = \frac{Spiked \; Sample \text{ - } Background}{Known \; Value \; of \; Spike} \; x \, 100\%$$

If the QC value falls outside the control limits (UCL or LCL) due to sample matrix effects, the results will be reported with appropriate data qualifiers. To determine the effect a non-compliant MS recovery has on the reported results, the recovery data will be evaluated as part of the validation process.

7.2.3 Laboratory Control Sample Analyses

The laboratory will perform Laboratory Control Sample (LCS) analyses prepared from SRMs. The SRMs will be supplied from an independent manufacturer and traceable to NIST materials with known concentrations of each target analyte to be determined by the analytical methods performed. In cases where an independently supplied SRM is not available, the LCS may be prepared by the laboratory from a reagent lot other than that used for instrument calibration.

The laboratory will evaluate LCS analyses in terms of percent recovery using the most recent laboratory generated control limits.

LCS recoveries that do not meet acceptance criteria will be deemed invalid. Analysis of project samples will cease until an acceptable LCS analysis has been performed. If sample analysis is performed in association with an out-of-control LCS sample analysis, the data will be deemed invalid.

Corrective actions will be initiated by the Haley & Aldrich QA Officer and/or Laboratory QA Officer to investigate the problem. After the problem has been identified and corrected, the solution will be noted in the instrument run logbook and re-analysis of project samples will be performed, if possible.

The analytical anomaly will be noted in the sample delivery group (SDG) Case Narrative and reviewed by the data validator. The data validator will confirm that appropriate corrective actions were implemented and recommend the applicable use of the affected data.

7.2.4 Surrogate Compound/Internal Standard Recoveries

For VOCs, surrogates will be added to each sample prior to analysis to establish purge and trap efficiency. Quantitation will be accomplished via internal standardization techniques.

The recovery of surrogate compounds and internal standards will be monitored by laboratory personnel to assess possible site-specific matrix effects on instrument performance.

For SVOC analyses, surrogates will be added to the raw sample to assess extraction efficiency. Internal standards will be added to all sample extracts and instrument calibration standard immediately before analysis for quantitation via internal standardization techniques.

Method specific QC limits are provided in the attached laboratory method SOPs. Surrogate compound/internal standard recoveries that do not fall within accepted QC limits for the analytical methodology performed will have the analytical results flagged with data qualifiers as appropriate by the laboratory and will not be noted in the laboratory report Case Narrative.

To ascertain the effect non-compliant surrogate compound/internal standard recoveries may have on the reported results, the recovery data will be evaluated as part of the validation process. The data validator will provide recommendations for corrective actions including but not limited to additional data qualification.

7.2.5 Calibration Verification Standards

Calibration verification (CV) standards will be utilized to confirm instrument calibrations and performance throughout the analytical process. CV standards will be prepared as prescribed by the respective analytical protocols. Continuing calibration will be verified by compliance with method-specific criteria prior to additional analysis of project samples.

Non-compliant analysis of CV standards will require immediate corrective action by the project laboratory QA officer and/or designated personnel. Corrective action may include re-analysis of each affected project sample, a detailed description of the problem, the corrective action undertaken, the person who performed the action, and the resolution of the problem.

7.2.6 Laboratory Method Blank Analyses

Method blank sample analysis will be performed as part of each analytical batch for each methodology performed. If target compounds are detected in the method blank samples, the reported results will be flagged by the laboratory in accordance with standard operating procedures. The data validator will provide recommendations for corrective actions including but not limited to additional data qualification.

8. Data Quality Objectives

Sampling that will be performed as described in the RIWP is designed to produce data of the quality necessary to achieve the minimum standard requirements of the field and laboratory analytical objectives described below. These data are being obtained with the primary objective to assess levels of contaminants of concern associated with the Site.

The overall project data quality objective (DQO) is to implement procedures for field data collection, sample collection, handling, and laboratory analysis and reporting that achieve the project objectives. The following section is a general discussion of the criteria that will be used to measure achievement of the project DQO.

8.1 PRECISION

8.1.1 Definition

Precision is defined as a quantitative measure of the degree to which two or more measurements are in agreement. Precision will be determined by collecting and analyzing field duplicate samples and by creating and analyzing laboratory duplicates from one or more of the field samples. The overall precision of measurement data is a mixture of sampling and analytical factors. The analytical results from the field duplicate samples will provide data on sampling precision. The results from duplicate samples created by the laboratory will provide data on analytical precision. The measurement of precision will be stated in terms of RPD.

8.1.2 Field Precision Sample Objectives

Field precision will be assessed through collection and measurement of field duplicate samples at a rate of 1 duplicate per 20 investigative samples. The RPD criteria for the project field duplicate samples will be +/- 100% for soil, +/- 35 % for groundwater for parameters of analysis detected at concentrations greater than 5 times (5X) the laboratory RL.

8.1.3 Laboratory Precision Sample Objectives

Laboratory precision will be assessed through the analysis of LCS and laboratory control duplicate samples (LCS/LCSD) and MS/MSD samples for groundwater and soil samples and the analysis of laboratory duplicate samples for air and soil vapor samples. Air and soil vapor laboratory duplicate sample analyses will be performed by analyzing the same SUMMA canister twice. The RPD criteria for the air/soil vapor laboratory duplicate samples will be +/- 35 % for parameters of analysis detected at concentrations greater than 5 times (5X) the laboratory RL.

8.2 ACCURACY

8.2.1 Definition

Accuracy relates to the bias in a measurement system. Bias is the difference between the observed and the "true" value. Sources of error are the sampling process, field contamination, preservation techniques, sample handling, sample matrix, sample preparation and analytical procedure limitations.

8.2.2 Field Accuracy Objectives

Sampling bias will be assessed by evaluating the results of field equipment rinse and trip blanks. Equipment rinse and trip blanks will be collected as appropriate based on sampling and analytical methods for each sampling effort.

If non-dedicated sampling equipment is used, equipment rinse blanks will be collected by passing ASTM Type II water over and/or through the respective sampling equipment utilized during each sampling effort. One equipment rinse blank will be collected for each type of non-dedicated sampling equipment used for the sampling effort. Equipment rinse blanks will be analyzed for each target parameter for the respective sampling effort for which environmental media have been collected. (Note: If dedicated or disposable sampling equipment is used, equipment rinse samples will not be collected as part of that field effort.)

Trip blank samples will be prepared by the laboratory and provided with each shipping container that includes containers for the collection of groundwater samples for the analysis of VOC. Trip blank samples will be analyzed for each VOC for which groundwater samples have been collected for analysis.

8.3 LABORATORY ACCURACY OBJECTIVES

Analytical bias will be assessed through the use of laboratory control samples (LCS) and Site-specific matrix spike (MS) sample analyses. LCS analyses will be performed with each analytical batch of project samples to determine the accuracy of the analytical system.

One set of MS/MSD analyses will be performed with each batch of 20 project samples collected for analysis to assess the accuracy of the identification and quantification of analytes within the Site-specific sample matrices. Additional sample volume will be collected at sample locations selected for the preparation of MS/MSD samples so that the standard laboratory RLs are achieved.

The accuracy of analyses that include a sample extraction procedure will be evaluated through the use of system monitoring or surrogate compounds. Surrogate compounds will be added to each sample, standard, blank, and QC sample prior to sample preparation and analysis. Surrogate compound percent recoveries will provide information on the effect of the sample matrix on the accuracy of the analyses.

8.4 REPRESENTATIVENESS

8.4.1 Definition

Representativeness expresses the degree to which sample data represent a characteristic of a population, a parameter variation at a sampling point or an environmental condition. Representativeness is a qualitative parameter that is dependent upon the design of the sampling program. The representativeness criterion is satisfied through the proper selection of sampling locations, the quantity of samples and the use of appropriate procedures to collect and analyze the samples.

8.4.2 Measures to Ensure Representativeness of Field Data

Representativeness will be addressed by prescribing sampling techniques and the rationale used to select sampling locations. Sampling locations may be biased (based on existing data, instrument surveys, observations, etc.) or unbiased (completely random or stratified-random approaches).

8.5 COMPLETENESS

8.5.1 Definition

Completeness is a measure of the amount of valid (usable) data obtained from a measuring system compared to the total amount of the anticipated to be obtained. The completeness goal for all data uses is that a sufficient amount of valid data be generated so that determinations can be made related to the intended data use with a sufficient degree of confidence.

8.5.2 Field Completeness Objectives

Completeness is a measure of the amount of valid measurements obtained from measurements taken in this project versus the number planned. Field completeness objective for this project will be greater than (>) 90%.

8.5.3 Laboratory Completeness Objectives

Laboratory data completeness objective is a measure of the amount of valid data obtained from laboratory measurements. The evaluation of the data completeness will be performed at the conclusion of each sampling and analysis effort.

The completeness of the data generated will be determined by comparing the amount of valid data, based on independent validation, with the total laboratory data set. The completeness goal will be >90%.

8.6 COMPARABILITY

8.6.1 Definition

Comparability is a qualitative parameter expressing the confidence with which one data set can be compared to another.

8.6.2 Measures to Ensure Comparability of Laboratory Data

Comparability of laboratory data will be measured from the analysis of SRM obtained from either EPA Cooperative Research and Development Agreement (CRADA) suppliers or the National Institute of Standards and Technology (NIST). The reported analytical data will also be presented in standard units of mass of contaminant within a known volume of environmental media. The standard units for various sample matrices are as follows:

- Solid Matrices – mg/kg of media (Dry Weight).
- Aqueous Matrices – ng/L for PFAS analyses, ug/L of media for organic analyses, and mg/L for inorganic analyses.

8.7 LEVEL OF QUALITY CONTROL EFFORT

If non-dedicated sampling equipment is used, equipment rinse blanks will be prepared by field personnel and submitted for analysis of target parameters. Equipment rinse blank samples will be analyzed to check for potential cross-contamination between sampling locations that may be introduced during the investigation. One equipment rinse blank will be collected per sampling event to the extent that non-dedicated sampling equipment is used.

If necessary, A separate equipment rinse blank sample will be collected for PFAS using the sample collection procedure described in Section 8.1.1 of the NYSDEC-approved Avangrid Field Sampling Plan. (Note: If dedicated or disposable sampling equipment is used, equipment rinse samples will not be collected as part of that field effort.)

Trip blanks will be used to assess the potential for contamination during sample storage and shipment. Trip blanks will be provided with the sample containers to be used for the collection of groundwater samples for the analysis of VOC. Trip blanks will be preserved and handled in the same manner as the project samples. One trip blank will be included along with each shipping container containing project samples to be analyzed for VOC.

Method blank samples will be prepared by the laboratory and analyzed concurrently with all project samples to assess potential contamination introduced during the analytical process.

Field duplicate samples will be collected and analyzed to determine sampling and analytical reproducibility. One field duplicate will be collected for every 20 or fewer investigative samples collected for off-Site laboratory analysis.

Matrix spikes will provide information to assess the precision and accuracy of the analysis of the target parameters within the environmental media collected. One MS/MSD will be collected for every 20 or fewer investigative samples per sample matrix.

(Note: Soil MS/MSD samples require triple sample volume for VOC only. Aqueous MS/MSD samples require triple the normal sample volume for VOC analysis and double the volume for the remaining parameters.)

9. Data Reduction, Validation and Reporting

Data generated by the laboratory operation will be reduced and validated prior to reporting in accordance with the following procedures:

9.1 DATA REDUCTION

9.1.1 Field Data Reduction Procedures

Field data reduction procedures will be minimal in scope compared to those implemented in the laboratory setting. The pH, conductivity, temperature, turbidity, DO, ORP and breathing zone VOC readings collected in the field will be generated from direct read instruments. The data will be written into field logbooks immediately after measurements are taken. If errors are made, data will be legibly crossed out, initialed and dated by the field member, and corrected in a space adjacent to the original entry.

9.1.2 Laboratory Data Reduction Procedures

Laboratory data reduction procedures are provided by the appropriate chapter of USEPA, “Test Methods for Evaluating Solid Waste”, SW-846, Third Edition. Errors will be noted; corrections made with the original notations crossed out legibly. Analytical results for soil samples will be calculated and reported on a dry weight basis.

9.1.3 Quality Control Data

QC data (e.g., laboratory duplicates, surrogates, matrix spikes, and matrix spike duplicates) will be compared to the method acceptance criteria. Data determined to be acceptable will be entered into the laboratory information management system.

Unacceptable data will be appropriately qualified in the project report. Case narratives will be prepared which will include information concerning data that fell outside acceptance limits and any other anomalous conditions encountered during sample analysis.

9.2 DATA VALIDATION

Data validation procedures of the analytical data will be performed by the Haley & Aldrich QA Officer or designee using the following documents as guidance for the review process:

- "U.S. EPA National Functional Guidelines for Organic Data Review”, and the "U.S. EPA National Functional Guidelines for Inorganic Data Review".

- The specific data qualifiers used will be applied to the reported results as presented and defined in the EPA National Functional Guidelines. Validation will be performed by qualified personnel at the direction of the Haley & Aldrich QAO. Tier 1 data validation (the equivalent of USEPA’s Stage 2A validation) will be performed to evaluate data quality.

- The completeness of each data package will be evaluated by the Data Validator. Completeness checks will be administered on all data to determine that the deliverables are consistent with the NYSDEC ASP Category A and Category B data package requirements. The validator will determine whether the required items are present and request copies of missing deliverables (if necessary) from the laboratory.

9.3 DATA REPORTING

Data reporting procedures will be carried out for field and laboratory operations as indicated below:

- Field Data Reporting: Field data reporting will be conducted principally through the transmission of report sheets containing tabulated results of measurements made in the field and documentation of field calibration activities.

- Laboratory Data Reporting: The laboratory data reporting package will enable data validation based on the protocols described above. The final laboratory data report format will include the QA/QC sample analysis deliverables to enable the development of a data usability summary report (DUSR) based on Department DER-10 Appendix 2B.

10. Performance and System Audits

A performance audit is an independent quantitative comparison with data routinely obtained in the field or the laboratory. Performance audits include two separate, independent parts: internal and external audits.

10.1 FIELD PERFORMANCE AND SYSTEM AUDITS

10.1.1 Internal Field Audit Responsibilities

Internal audits of field activities will be initiated at the discretion of the Project Manager and will include the review of sampling and field measurements. The audits will verify that all procedures are being followed. Internal field audits will be conducted periodically during the project. The audits will include examination of the following:

- Field sampling records, screening results, instrument operating records;
- Sample collection;
- Handling and packaging in compliance with procedures;
- Maintenance of QA procedures; and,
- Chain-of-custody reports.

10.1.2 External Field Audit Responsibilities

External audits may be conducted by the Project Coordinator at any time during the field operations. These audits may or may not be announced and are at the discretion of the NYSDEC. The external field audits can include (but are not limited to) the following:

- Sampling equipment decontamination procedures;
- Sample bottle preparation procedures;
- Sampling procedures;
- Examination of health and safety plans;
- Procedures for verification of field duplicates; and,
- Field screening practices.

10.2 LABORATORY PERFORMANCE AND SYSTEM AUDITS

10.2.1 Internal Laboratory Audit Responsibilities

The laboratory system audits are typically conducted by the laboratory QA Officer or designee on an annual basis. The system audit will include an examination of laboratory documentation including sample receiving logs, sample storage, chain-of-custody procedures, sample preparation and analysis and instrument operating records.

At the conclusion of internal system audits, reports will be provided to the laboratory's operating divisions for appropriate comment and remedial/corrective action where necessary. Records of audits and corrective actions will be maintained by the Laboratory QA Officer.

10.2.2 External Laboratory Audit Responsibilities

External audits will be conducted as required, by the NYSDOH or designee. External audits may include any of the following:

- Review of laboratory analytical procedures;
- Laboratory on-site visits; and,
- Submission of performance evaluation samples for analysis.

Failure of any of the above audit procedures can lead to laboratory de-certification. An audit may consist of but not limited to:

- Sample receipt procedures;
- Custody, sample security and log-in procedures;
- Review of instrument calibration logs;
- Review of QA procedures;
- Review of log books;
- Review of analytical SOPs; and,
- Personnel interviews.

A review of a data package from samples recently analyzed by the laboratory can include (but not be limited to) the following:

- Comparison of resulting data to the SOP or method;
- Verification of initial and continuing calibrations within control limits;
- Verification of surrogate recoveries and instrument timing results;
- Review of extended quantitation reports for comparisons of library spectra to instrument spectra, where applicable; and,
- Assurance that samples are run within holding times.

11. Preventive Maintenance

11.1 FIELD INSTRUMENT PREVENTIVE MAINTENANCE

The field equipment preventive maintenance program is designed to ensure the effective completion of the sampling effort and to minimize equipment down time. Program implementation is concentrated in three areas:

- Maintenance responsibilities;
- Maintenance schedules; and,
- Inventory of critical spare parts and equipment.

The maintenance responsibilities for field equipment will be assigned to the task leaders in charge of specific field operations. Field personnel will be responsible for daily field checks and calibrations and for reporting any problems with the equipment. The maintenance schedule will follow the manufacturer's recommendations. In addition, the field personnel will be responsible for determining that an inventory of spare parts will be maintained with the field equipment. The inventory will primarily contain parts that are subject to frequent failure, have limited useful lifetimes and/or cannot be obtained in a timely manner.

11.2 LABORATORY INSTRUMENT PREVENTIVE MAINTENANCE

Analytical instruments at the laboratory will undergo routine and/or preventive maintenance. The extent of the preventive maintenance will be a function of the complexity of the equipment.

Generally, annual preventive maintenance service will involve cleaning, adjusting, inspecting and testing procedures designed to deduce instrument failure and/or extend useful instrument life. Between visits, routine operator maintenance and cleaning will be performed according to manufacturer's specifications by laboratory personnel.

12. Specific Routine Procedures Used to Assess Data Precision, Accuracy, and Completeness

12.1 FIELD MEASUREMENTS

Field generated information will be reviewed by the Field Coordinator and typically include evaluation of bound logbooks/forms, data entry and calculation checks. Field data will be assessed by the Project Coordinator who will review the field results for compliance with the established QC criteria that are specified in Section 7.0 of this QAPP. The accuracy of pH and specific conductance will be assessed using daily instrument calibration, calibration check, and blank data. Accuracy will be measured by determining the percent recovery (% R) of calibration check standards. Precision of the pH and specific conductance measurements will be assessed on the basis of the reproducibility of duplicate readings of a field sample and will be measured by determining the RPD. Accuracy and precision of the soil VOC screening will be determined using duplicate readings of calibration checks. Field data completeness will be calculated using the following equation:

$$\text{Completeness} = \frac{\text{Valid (usable) Data Obtained}}{\text{Total Data Planned}} \text{ X } 100$$

12.2 LABORATORY DATA

Surrogate, internal standard and matrix spike recoveries will be used to evaluate data quality. The laboratory QA/QC program will include the following elements:

- Precision, in terms of RPD, will be determined by relative sample analysis at a frequency of one duplicate analysis for each batch of ten project samples or a frequency of 10%. RPD is defined as the absolute difference of duplicate measurements divided by the mean of these analyses normalized to percentage.

- Accuracy, in terms of percent recovery (recovery of known constituent additions or surrogate recoveries), will be determined by the analysis of spiked and unspiked samples. MS/MSD will be used to determine analytical accuracy. The frequency of MS/MSD analyses will be one project sample MS/MSD per set of 20 project samples.

- One method blank will be prepared and analyzed with each batch of project samples. The total number of method blank sample analyses will be determined by the laboratory analytical batch size.

- SRMs will be used for each analysis. Sources of SRM's include the U.S. EPA, commercially available material from CRADA certified vendors and/or laboratory produced solutions. SRMs, when available and appropriate, will be processed and analyzed on a frequency of one per set of samples.

- Completeness is the evaluation of the amount of valid data generated versus the total set of data produced from a particular sampling and analysis event. Valid data is determined by independent confirmation of compliance with method-specific and project-specific data quality objectives. The calculation of data set completeness will be performed by the following equation.

$$\frac{Number\ of\ Valid\ Sample\ Results}{Total\ Number\ of\ Samples\ Planned}\ X\ 100 = \%\ Complete$$

13. Quality Assurance Reports

Critically important to the successful implementation of the QA Plan is a reporting system that provides the means by which the program can be reviewed, problems identified, and programmatic changes made to improve the plan.

QA reports to management can include:

- Audit reports, internal and external audits with responses;
- Performance evaluation sample results; internal and external sources; and,
- Daily QA/QC exception reports/corrective actions.

QA/QC corrective action reports will be prepared by the Haley & Aldrich QA Officer when appropriate and presented to the project and/or laboratory management personnel so that performance criteria can be monitored for all analyses from each analytical department. The updated trend/QA charts prepared by the laboratory QA personnel will be distributed and reviewed by various levels of the laboratory management.

References

1. United States Environmental Protection Agency, (1999). EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations. EPA QA/R-5 Interim Final, November 1999.

2. United States Environmental Protection Agency (1991). Preparation Aids for the Development of Category I Quality Assurance Project Plans. U.S. EPA/600/8-91/003, Risk Reduction Engineering Laboratory, Office of Research and Development, Cincinnati, Ohio, February 1991.

3. United States Environmental Protection Agency, (1993). Data Quality Objectives Process for Superfund Interim Final Guidance. U.S. EPA/540/R-93-071, Office of Solid Waste and Emergency Response (OSWER), September 1993.

4. United States Environmental Protection Agency, (1992). Specifications and Guidance for Contaminant-Free Sample Containers. OSWER Directive 9240.0-05A, April 1992.

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7. United States Environmental Protection Agency. Test Methods for Evaluating Solid Waste, Office of Solid Waste, U.S. EPA, SW-846, November 1986, with updates.

8. New York State Department of Environmental Conservation, NYSDEC Analytical Services Protocol (ASP), Bureau of Environmental Investigation, 1991 with updates.

9. New York State Department of Environmental Conservation, NYSDEC, Division of Environmental Remediation, Technical Guidance for Site Investigation and Remediation, DER-10, May 2010.

10. New York State Department of Environmental Conservation, NYSDEC, Division of Environmental Remediation, Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC Part 375 Remedial Program, November 2022.

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TABLES

TABLE I
SUMMARY OF ANALYSIS METHOD, PRESERVATION METHOD, HOLDING TIME, SAMPLE SIZE REQUIREMENTS AND SAMPLE CONTAINERS
91 Bruckner Boulevard
Bronx, NY

Analysis/Method	Sample Type	Preservation	Holding Time	Volume/Weight	Container
Volatile Organic Compounds/8260C	Soil	1 - 1 Vial MeOH/2 Vial Water, Cool, 4 ± 2 °C	14 days[1]	120 mL	3 - 40ml glass vials
Semivolatile Organic Compounds/8270D	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 8 oz Glass
Pesticides (8081B)	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 8 oz Glass
Polychlorinated Biphenyls/8082A	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 8 oz Glass
Metals/6010D	Soil	Cool, 4 ± 2 °C	180 days	60 mL	1 - 2 oz Glass
PFAS 1633	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 8 oz Glass
1,4-Dioxane 8270	Soil	Cool, 4 ± 2 °C	14 days	250 mL	1 - 8 oz Glass
Toxicity Characteristic Leaching Procedure Metals	Soil	Cool, 4 ± 2 °C	180 days	120 mL	1 - 4 oz Glass
Volatile Organic Compounds/8260C	Groundwater	HCl, Cool, 4 ± 2 °C	14 days	120 mL	3 - 40ml glass vials
Semivolatile Organic Compounds/8270D	Groundwater	Cool, 4 ± 2 °C	7 days	500 mL	2 - 250 mL amber glass
TAL Metals 6020	Groundwater	HNO_3Cool, 4 ± 2 °C	180 days	500 mL	1 - 500 mL plastic bottle
PFAS 1633	Groundwater	H2O Cool, 4 ± 2 °C	14 days	500 mL	2 - teflon free 250 ml plastic containers
1,4-Dioxane 8270 SIM	Groundwater	Cool, 4 ± 2 °C	7 days	500 mL	1 - 500 mL plastic bottle
Volatile Organic Compounds/TO-15	Soil Vapor	N/A	30 days	2.7 - 6 L	1 2.7 or 6 L Summa Canister

Notes:
1. Terracores and encores must be frozen within 48 hours of collection
2. Refer to text for additional information.

APPENDIX E

NYSDEC Emerging Contaminant Field Sampling Guidance

HALEY ALDRICH

NEW YORK STATE OF OPPORTUNITY. | Department of Environmental Conservation

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS)

Under NYSDEC's Part 375 Remedial Programs

November 2022

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November 2022

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

ERRATA SHEET for

SAMPLING, ANALYSIS, AND ASSESSMENT OF PER- AND POLYFLUOROALKYL SUBSTANCES (PFAS) Under NYSDEC's Part 375 Remedial Programs Issued January 17, 2020

Citation and Page Number	Current Text	Corrected Text	Date
Title of Appendix I, page 32	Appendix H	Appendix I	2/25/2020
Document Cover, page 1	Guidelines for Sampling and Analysis of PFAS	Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs	9/15/2020
Routine Analysis, page 9	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1 or ISO 25101."	"However, laboratories analyzing environmental samples…PFOA and PFOS in drinking water by EPA Method 537, 537.1, ISO 25101, or Method 533."	9/15/2020
Additional Analysis, page 9, new paragraph regarding soil parameters	None	"In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (EPA Method 9060), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils."	9/15/2020
Data Assessment and Application to Site Cleanup Page 10	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFAS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Target levels for cleanup of PFAS in other media, including biota and sediment, have not yet been established by the DEC.	Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Water Sample Results Page 10	PFAS should be further assessed and considered as a potential contaminant of concern in groundwater or surface water (…) If PFAS are identified as a contaminant of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water (…) If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.	9/15/2020
Soil Sample Results, page 10	"The extent of soil contamination for purposes of delineation and remedy selection should be determined by having certain soil samples tested by Synthetic Precipitation Leaching Procedure (SPLP) and the leachate analyzed for PFAS. Soil exhibiting SPLP results above 70 ppt for either PFOA or PFOS (individually or combined) are to be evaluated during the cleanup phase."	"Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values. " [Interim SCO Table] "PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP. As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf. "	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Testing for Imported Soil Page 11	Soil imported to a site for use in a soil cap, soil cover, or as backfill is to be tested for PFAS in general conformance with DER-10, Section 5.4(e) for the PFAS Analyte List (Appendix F) using the analytical procedures discussed below and the criteria in DER-10 associated with SVOCs. If PFOA or PFOS is detected in any sample at or above 1 µg/kg, then soil should be tested by SPLP and the leachate analyzed for PFAS. If the SPLP results exceed 10 ppt for either PFOA or PFOS (individually) then the source of backfill should be rejected, unless a site-specific exemption is provided by DER. SPLP leachate criteria is based on the Maximum Contaminant Levels proposed for drinking water by New York State's Department of Health, this value may be updated based on future Federal or State promulgated regulatory standards. Remedial parties have the option of analyzing samples concurrently for both PFAS in soil and in the SPLP leachate to minimize project delays. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable. PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.	9/15/2020

Citation and Page Number	Current Text	Corrected Text	Date
Footnotes	None	[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances. [2] The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the soil cleanup objective for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).	9/15/2020
Additional Analysis, page 9	In cases… soil parameters, such as Total Organic Carbon (EPA Method 9060), soil…	In cases… soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil…	1/8/2021
Appendix A, General Guidelines, fourth bullet	List the ELAP-approved lab(s) to be used for analysis of samples	List the ELAP- certified lab(s) to be used for analysis of samples	1/8/2021
Appendix E, Laboratory Analysis and Containers	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by ISO Method 25101.	Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101	1/8/2021
Water Sample Results Page 9	"In addition, further assessment of water may be warranted if either of the following screening levels are met: a. any other individual PFAS (not PFOA or PFOS) is detected in water at or above 100 ng/L; or b. total concentration of PFAS (including PFOA and PFOS) is detected in water at or above 500 ng/L"	Deleted	6/15/2021

Citation and Page Number	Current Text	Corrected Text	Date
Routine Analysis, Page XX	Currently, New York State Department of Health's Environmental Laboratory Approval Program (ELAP)… criteria set forth in the DER's laboratory guidelines for PFAS in non-potable water and solids (Appendix H - Laboratory Guidelines for Analysis of PFAS in Non-Potable Water and Solids).	Deleted	5/31/2022
Analysis and Reporting, Page XX	As of October 2020, the United States Environmental Protection Agency (EPA) does not have a validated method for analysis of PFAS for media commonly analyzed under DER remedial programs (non-potable waters, solids). DER has developed the following guidelines to ensure consistency in analysis and reporting of PFAS.	Deleted	5/31/2022
Routine Analysis, Page XX	LC-MS/MS analysis for PFAS using methodologies based on EPA Method 537.1 is the procedure to use for environmental samples. Isotope dilution techniques should be utilized for the analysis of PFAS in all media.	EPA Method 1633 is the procedure to use for environmental samples.	
Soil Sample Results, Page XX	Soil cleanup objectives for PFOA and PFOS will be proposed in an upcoming revision to 6 NYCRR Part 375-6	Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6	
Appendix A	"Include in the text… LC-MS/MS for PFAS using methodologies based on EPA Method 537.1"	"Include in the text ….EPA Method 1633"	
Appendix A	"Laboratory should have ELAP certification for PFOA and PFOS in drinking water by EPA Method 537, 537.1, EPA Method 533, or ISO 25101"	Deleted	
Appendix B	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	

Citation and Page Number	Current Text	Corrected Text	Date
Appendix C	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix D	"Samples collected using this protocol are intended to be analyzed for PFAS using methodologies based on EPA Method 537.1"	"Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633"	
Appendix G		Updated to include all forty PFAS analytes in EPA Method 533	
Appendix H		Deleted	
Appendix I	Appendix I	Appendix H	
Appendix H	"These guidelines are intended to be used for the validation of PFAS analytical results for projects within the Division of Environmental Remediation (DER) as well as aid in the preparation of a data usability summary report."	"These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER)."	
Appendix H	"The holding time is 14 days…"	"The holding time is 28 days…"	
Appendix H, Initial Calibration	"The initial calibration should contain a minimum of five standards for linear fit…"	"The initial calibration should contain a minimum of six standards for linear fit…"	
Appendix H, Initial Calibration	Linear fit calibration curves should have an R^2 value greater than 0.990.	Deleted	
Appendix H, Initial Calibration Verification	Initial Calibration Verification Section	Deleted	
Appendix H	secondary Ion Monitoring Section	Deleted	
Appendix H	Branched and Linear Isomers Section	Deleted	

NEW YORK STATE OF OPPORTUNITY | Department of Environmental Conservation

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

Objective

New York State Department of Environmental Conservation's Division of Environmental Remediation (DER) performs or oversees sampling of environmental media and subsequent analysis of PFAS as part of remedial programs implemented under 6 NYCRR Part 375. To ensure consistency in sampling, analysis, reporting, and assessment of PFAS, DER has developed this document which summarizes currently accepted procedures and updates previous DER technical guidance pertaining to PFAS.

Applicability

All work plans submitted to DEC pursuant to one of the remedial programs under Part 375 shall include PFAS sampling and analysis procedures that conform to the guidelines provided herein.

As part of a site investigation or remedial action compliance program, whenever samples of potentially affected media are collected and analyzed for the standard Target Analyte List/Target Compound List (TAL/TCL), PFAS analysis should also be performed. Potentially affected media can include soil, groundwater, surface water, and sediment. Based upon the potential for biota to be affected, biota sampling and analysis for PFAS may also be warranted as determined pursuant to a Fish and Wildlife Impact Analysis. Soil vapor sampling for PFAS is not required.

Field Sampling Procedures

DER-10 specifies technical guidance applicable to DER's remedial programs. Given the prevalence and use of PFAS, DER has developed "best management practices" specific to sampling for PFAS. As specified in DER-10 Chapter 2, quality assurance procedures are to be submitted with investigation work plans. Typically, these procedures are incorporated into a work plan, or submitted as a stand-alone document (e.g., a Quality Assurance Project Plan). Quality assurance guidelines for PFAS are listed in Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS.

Field sampling for PFAS performed under DER remedial programs should follow the appropriate procedures outlined for soils, sediments, or other solids (Appendix B), non-potable groundwater (Appendix C), surface water (Appendix D), public or private water supply wells (Appendix E), and fish tissue (Appendix F).

QA/QC samples (e.g. duplicates, MS/MSD) should be collected as specified in DER-10, Section 2.3(c). For sampling equipment coming in contact with aqueous samples only, rinsate or equipment blanks should be collected. Equipment blanks should be collected at a minimum frequency of one per day per site or one per twenty samples, whichever is more frequent.

Analysis and Reporting

The investigation work plan should describe analysis and reporting procedures, including laboratory analytical procedures for the methods discussed below. As specified in DER-10 Section 2.2, laboratories should provide a full Category B deliverable. In addition, a Data Usability Summary Report (DUSR) should be prepared by an independent, third party data validator. Electronic data submissions should meet the requirements provided at: https://www.dec.ny.gov/chemical/62440.html.

DER has developed a *PFAS Analyte List* (Appendix G) for remedial programs to understand the nature of contamination at sites. It is expected that reported results for PFAS will include, at a minimum, all the compounds listed. If lab and/or matrix specific issues are encountered for any analytes, the DER project manager, in consultation with the DER chemist, will make case-by-case decisions as to whether certain analytes may be temporarily or permanently discontinued from analysis at each site. As with other contaminants that are analyzed for at a site, the *PFAS Analyte List* may be refined for future sampling events based on investigative findings.

Routine Analysis

EPA Method 1633 is the procedure to use for environmental samples. Reporting limits for PFOA and PFOS in aqueous samples should not exceed 2 ng/L. Reporting limits for PFOA and PFOS in solid samples should not exceed 0.5 µg/kg. Reporting limits for all other PFAS in aqueous and solid media should be as close to these limits as possible. If laboratories indicate that they are not able to achieve these reporting limits for the entire *PFAS Analyte List*, site-specific decisions regarding acceptance of elevated reporting limits for specific PFAS can be made by the DER project manager in consultation with the DER chemist. Data review guidelines were developed by DER to ensure data comparability and usability (Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids).

Additional Analysis

Additional laboratory methods for analysis of PFAS may be warranted at a site, such as the Synthetic Precipitation Leaching Procedure (SPLP) and Total Oxidizable Precursor Assay (TOP Assay).

In cases where site-specific cleanup objectives for PFOA and PFOS are to be assessed, soil parameters, such as Total Organic Carbon (Lloyd Kahn), soil pH (EPA Method 9045), clay content (percent), and cation exchange capacity (EPA Method 9081), should be included in the analysis to help evaluate factors affecting the leachability of PFAS in site soils.

SPLP is a technique used to determine the mobility of chemicals in liquids, soils and wastes, and may be useful in determining the need for addressing PFAS-containing material as part of the remedy. SPLP by EPA Method 1312 should be used unless otherwise specified by the DER project manager in consultation with the DER chemist.

Impacted materials can be made up of PFAS that are not analyzable by routine analytical methodology. A TOP Assay can be utilized to conceptualize the amount and type of oxidizable PFAS which could be liberated in the environment, which approximates the maximum concentration of perfluoroalkyl substances that could be generated if all polyfluoroalkyl substances were oxidized. For example, some polyfluoroalkyl substances may degrade or transform to form perfluoroalkyl substances (such as PFOA or PFOS), resulting in an increase in perfluoroalkyl substance concentrations as contaminated groundwater moves away from a source. The TOP Assay converts, through oxidation, polyfluoroalkyl substances (precursors) into perfluoroalkyl substances that can be detected by routine analytical methodology.[1]

[1] TOP Assay analysis of highly contaminated samples, such as those from an AFFF (aqueous film-forming foam) site, can result in incomplete oxidation of the samples and an underestimation of the total perfluoroalkyl substances.

Commercial laboratories have adopted methods which allow for the quantification of targeted PFAS in air and biota. The EPA's Office of Research and Development (ORD) is currently developing methods which allow for air emissions characterization of PFAS, including both targeted and non-targeted analysis of PFAS. Consult with the DER project manager and the DER chemist for assistance on analyzing biota/tissue and air samples.

Data Assessment and Application to Site Cleanup

Until such time as Ambient Water Quality Standards (AWQS) and Soil Cleanup Objectives (SCOs) for PFOA and PFOS are published, the extent of contaminated media potentially subject to remediation should be determined on a case-by-case basis using the procedures discussed below and the criteria in DER-10. Preliminary target levels for cleanup of PFOA and PFOS in other media, including biota and sediment, have not yet been established by the DEC.

Water Sample Results

PFOA and PFOS should be further assessed and considered as potential contaminants of concern in groundwater or surface water if PFOA or PFOS is detected in any water sample at or above 10 ng/L (ppt) and is determined to be attributable to the site, either by a comparison of upgradient and downgradient levels, or the presence of soil source areas, as defined below.

If PFOA and/or PFOS are identified as contaminants of concern for a site, they should be assessed as part of the remedy selection process in accordance with Part 375 and DER-10.

Soil Sample Results

Soil cleanup objectives for PFOA and PFOS have been proposed in an upcoming revision to 6 NYCRR Part 375-6. Until SCOs are in effect, the following are to be used as guidance values:

Guidance Values for Anticipated Site Use	PFOA (ppb)	PFOS (ppb)
Unrestricted	0.66	0.88
Residential	6.6	8.8
Restricted Residential	33	44
Commercial	500	440
Industrial	600	440
Protection of Groundwater[2]	1.1	3.7

PFOA and PFOS results for soil are to be compared against the guidance values listed above. These guidance values are to be used in determining whether PFOA and PFOS are contaminants of concern for the site and for determining remedial action objectives and cleanup requirements. Site-specific remedial objectives for protection of groundwater can also be presented for evaluation by DEC. Development of site-specific remedial objectives for protection of groundwater will require analysis of additional soil parameters relating to leachability. These additional analyses can include any or all the parameters listed above (soil pH, cation exchange capacity, etc.) and/or use of SPLP.

As the understanding of PFAS transport improves, DEC welcomes proposals for site-specific remedial objectives for protection of groundwater. DEC will expect that those may be dependent on additional factors including soil pH, aqueous pH, % organic carbon, % Sand/Silt/Clay, soil cations: K, Ca, Mg, Na, Fe, Al, cation exchange

[2] The movement of PFAS in the environment is being aggressively researched at this time; that research will eventually result in more accurate models for the behaviors of these chemicals. In the meantime, DEC has calculated the guidance value for the protection of groundwater using the same procedure used for all other chemicals, as described in Section 7.7 of the Technical Support Document (http://www.dec.ny.gov/docs/remediation_hudson_pdf/techsuppdoc.pdf).

capacity, and anion exchange capacity. Site-specific remedial objectives should also consider the dilution attenuation factor (DAF). The NJDEP publication on DAF can be used as a reference: https://www.nj.gov/dep/srp/guidance/rs/daf.pdf.

Testing for Imported Soil

Testing for PFAS should be included any time a full TAL/TCL analyte list is required. Results for PFOA and PFOS should be compared to the applicable guidance values. If PFOA or PFOS is detected in any sample at or above the guidance values then the source of backfill should be rejected, unless a site-specific exemption is provided by DER based on SPLP testing, for example. If the concentrations of PFOA and PFOS in leachate are at or above 10 ppt (the Maximum Contaminant Levels established for drinking water by the New York State Department of Health), then the soil is not acceptable.

PFOA, PFOS and 1,4-dioxane are all considered semi-volatile compounds, so composite samples are appropriate for these compounds when sampling in accordance with DER-10, Table 5.4(e)10. Category B deliverables should be submitted for backfill samples, though a DUSR is not required.

Appendix A - Quality Assurance Project Plan (QAPP) Guidelines for PFAS

The following guidelines (general and PFAS-specific) can be used to assist with the development of a QAPP for projects within DER involving sampling and analysis of PFAS.

General Guidelines in Accordance with DER-10

- Document/work plan section title – Quality Assurance Project Plan
- Summarize project scope, goals, and objectives
- Provide project organization including names and resumes of the project manager, Quality Assurance Officer (QAO), field staff, and Data Validator
    - The QAO should not have another position on the project, such as project or task manager, that involves project productivity or profitability as a job performance criterion
- List the ELAP certified lab(s) to be used for analysis of samples
- Include a site map showing sample locations
- Provide detailed sampling procedures for each matrix
- Include Data Quality Usability Objectives
- List equipment decontamination procedures
- Include an "Analytical Methods/Quality Assurance Summary Table" specifying:
    - Matrix type
    - Number or frequency of samples to be collected per matrix
    - Number of field and trip blanks per matrix
    - Analytical parameters to be measured per matrix
    - Analytical methods to be used per matrix with minimum reporting limits
    - Number and type of matrix spike and matrix spike duplicate samples to be collected
    - Number and type of duplicate samples to be collected
    - Sample preservation to be used per analytical method and sample matrix
    - Sample container volume and type to be used per analytical method and sample matrix
    - Sample holding time to be used per analytical method and sample matrix
- Specify Category B laboratory data deliverables and preparation of a DUSR

Specific Guidelines for PFAS

- Include in the text that sampling for PFAS will take place
- Include in the text that PFAS will be analyzed by EPA Method 1633
- Include the list of PFAS compounds to be analyzed (*PFAS Analyte List*)
- Include the laboratory SOP for PFAS analysis
- List the minimum method-achievable Reporting Limits for PFAS
    - Reporting Limits should be less than or equal to:
        - Aqueous – 2 ng/L (ppt)
        - Solids – 0.5 µg/kg (ppb)
- Include the laboratory Method Detection Limits for the PFAS compounds to be analyzed
-
- Include detailed sampling procedures
    - Precautions to be taken
    - Pump and equipment types
    - Decontamination procedures
    - Approved materials only to be used
- Specify that regular ice only will be used for sample shipment
- Specify that equipment blanks should be collected at a minimum frequency of 1 per day per site for each matrix

Appendix B - Sampling Protocols for PFAS in Soils, Sediments and Solids

General

The objective of this protocol is to give general guidelines for the collection of soil, sediment and other solid samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Containers

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in to contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel spoon
- stainless steel bowl
- steel hand auger or shovel without any coatings

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Sampling is often conducted in areas where a vegetative turf has been established. In these cases, a pre-cleaned trowel or shovel should be used to carefully remove the turf so that it may be replaced at the conclusion of sampling. Surface soil samples (e.g. 0 to 6 inches below surface) should then be collected using a pre-cleaned, stainless steel spoon. Shallow subsurface soil samples (e.g. 6 to ~36 inches below surface) may be collected by digging a hole using a pre-cleaned hand auger or shovel. When the desired subsurface depth is reached, a pre-cleaned hand auger or spoon shall be used to obtain the sample.

When the sample is obtained, it should be deposited into a stainless steel bowl for mixing prior to filling the sample containers. The soil should be placed directly into the bowl and mixed thoroughly by rolling the material into the middle until the material is homogenized. At this point the material within the bowl can be placed into the laboratory provided container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A soil log or sample log shall document the location of the sample/borehole, depth of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix C - Sampling Protocols for PFAS in Monitoring Wells

General

The objective of this protocol is to give general guidelines for the collection of groundwater samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including plumbers tape and sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel inertia pump with HDPE tubing
- peristaltic pump equipped with HDPE tubing and silicone tubing
- stainless steel bailer with stainless steel ball
- bladder pump (identified as PFAS-free) with HDPE tubing

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Monitoring wells should be purged in accordance with the sampling procedure (standard/volume purge or low flow purge) identified in the site work plan, which will determine the appropriate time to collect the sample. If sampling using standard purge techniques, additional purging may be needed to reduce turbidity levels, so samples contain a limited amount of sediment within the sample containers. Sample containers that contain sediment may cause issues at the laboratory, which may result in elevated reporting limits and other issues during the sample preparation that can compromise data usability. Sampling personnel should don new nitrile gloves prior to sample collection due to the potential to contact PFAS containing items (not related to the sampling equipment) during the purging activities.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Additional equipment blank samples may be collected to assess other equipment that is utilized at the monitoring well
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A purge log shall document the location of the sample, sampling equipment, groundwater parameters, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix D - Sampling Protocols for PFAS in Surface Water

General

The objective of this protocol is to give general guidelines for the collection of surface water samples for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Samples collected using this protocol are intended to be analyzed for PFAS using EPA Method 1633.

The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include: stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials including sample bottle cap liners with a PTFE layer.

A list of acceptable equipment is provided below, but other equipment may be considered appropriate based on sampling conditions.

- stainless steel cup

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Where conditions permit, (e.g. creek or pond) sampling devices (e.g. stainless steel cup) should be rinsed with site medium to be sampled prior to collection of the sample. At this point the sample can be collected and poured into the sample container.

If site conditions permit, samples can be collected directly into the laboratory container.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- Collect one equipment blank per day per site and minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers
- Request appropriate data deliverable (Category B) and an electronic data deliverable

Documentation

A sample log shall document the location of the sample, sampling equipment, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate. Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appropriate rain gear (PVC, polyurethane, or rubber rain gear are acceptable), bug spray, and sunscreen should be used that does not contain PFAS. Well washed cotton coveralls may be used as an alternative to bug spray and/or sunscreen.

PPE that contains PFAS is acceptable when site conditions warrant additional protection for the samplers and no other materials can be used to be protective. Documentation of such use should be provided in the field notes.

Appendix E - Sampling Protocols for PFAS in Private Water Supply Wells

General

The objective of this protocol is to give general guidelines for the collection of water samples from private water supply wells (with a functioning pump) for PFAS analysis. The sampling procedure used should be consistent with Sampling Guidelines and Protocols – Technological Background and Quality Control/Quality Assurance for NYS DEC Spill Response Program – March 1991 (http://www.dec.ny.gov/docs/remediation_hudson_pdf/sgpsect5.pdf), with the following limitations.

Laboratory Analysis and Container

Drinking water samples collected using this protocol are intended to be analyzed for PFAS by EPA Method 537, 537.1, 533, or ISO Method 25101. The preferred material for containers is high density polyethylene (HDPE). Pre-cleaned sample containers, coolers, sample labels, and a chain of custody form will be provided by the laboratory.

Equipment

Acceptable materials for sampling include stainless steel, HDPE, PVC, silicone, acetate, and polypropylene. Additional materials may be acceptable if pre-approved by New York State Department of Environmental Conservation's Division of Environmental Remediation.

No sampling equipment components or sample containers should come in contact with aluminum foil, low density polyethylene, glass, or polytetrafluoroethylene (PTFE, Teflon™) materials (e.g. plumbers tape), including sample bottle cap liners with a PTFE layer.

Equipment Decontamination

Standard two step decontamination using detergent (Alconox is acceptable) and clean, PFAS-free water will be performed for sampling equipment. All sources of water used for equipment decontamination should be verified in advance to be PFAS-free through laboratory analysis or certification.

Sampling Techniques

Locate and assess the pressure tank and determine if any filter units are present within the building. Establish the sample location as close to the well pump as possible, which is typically the spigot at the pressure tank. Ensure sampling equipment is kept clean during sampling as access to the pressure tank spigot, which is likely located close to the ground, may be obstructed and may hinder sample collection.

Prior to sampling, a faucet downstream of the pressure tank (e.g., washroom sink) should be run until the well pump comes on and a decrease in water temperature is noted which indicates that the water is coming from the well. If the homeowner is amenable, staff should run the water longer to purge the well (15+ minutes) to provide a sample representative of the water in the formation rather than standing water in the well and piping system including the pressure tank. At this point a new pair of nitrile gloves should be donned and the sample can be collected from the sample point at the pressure tank.

Sample Identification and Logging

A label shall be attached to each sample container with a unique identification. Each sample shall be included on the chain of custody (COC).

Quality Assurance/Quality Control

- Immediately place samples in a cooler maintained at 4 ± 2º Celsius using ice
- Collect one field duplicate for every sample batch, minimum 1 duplicate per 20 samples. The duplicate shall consist of an additional sample at a given location
- Collect one matrix spike / matrix spike duplicate (MS/MSD) for every sample batch, minimum 1 MS/MSD per 20 samples. The MS/MSD shall consist of an additional two samples at a given location and identified on the COC
- If equipment was used, collect one equipment blank per day per site and a minimum 1 equipment blank per 20 samples. The equipment blank shall test the new and decontaminated sampling equipment utilized to obtain a sample for residual PFAS contamination. This sample is obtained by using laboratory provided PFAS-free water and passing the water over or through the sampling device and into laboratory provided sample containers.
- A field reagent blank (FRB) should be collected at a rate of one per 20 samples. The lab will provide a FRB bottle containing PFAS free water and one empty FRB bottle. In the field, pour the water from the one bottle into the empty FRB bottle and label appropriately.
- Request appropriate data deliverable (Category B) and an electronic data deliverable
- For sampling events where multiple private wells (homes or sites) are to be sampled per day, it is acceptable to collect QC samples at a rate of one per 20 across multiple sites or days.

Documentation

A sample log shall document the location of the private well, sample point location, owner contact information, sampling equipment, purge duration, duplicate sample, visual description of the material, and any other observations or notes determined to be appropriate and available (e.g. well construction, pump type and location, yield, installation date). Additionally, care should be performed to limit contact with PFAS containing materials (e.g. waterproof field books, food packaging) during the sampling process.

Personal Protection Equipment (PPE)

For most sampling Level D PPE is anticipated to be appropriate. The sampler should wear nitrile gloves while conducting field work and handling sample containers.

Field staff shall consider the clothing to be worn during sampling activities. Clothing that contains PTFE material (including GORE-TEX®) or that have been waterproofed with PFAS materials should be avoided. All clothing worn by sampling personnel should have been laundered multiple times.

Appendix F - Sampling Protocols for PFAS in Fish

This appendix contains a copy of the latest guidelines developed by the Division of Fish and Wildlife (DFW) entitled "General Fish Handling Procedures for Contaminant Analysis" (Ver. 8).

Procedure Name: General Fish Handling Procedures for Contaminant Analysis

Number: FW-005

Purpose: This procedure describes data collection, fish processing and delivery of fish collected for contaminant monitoring. It contains the chain of custody and collection record forms that should be used for the collections.

Organization: Environmental Monitoring Section
Bureau of Ecosystem Health
Division of Fish and Wildlife (DFW)
New York State Department of Environmental Conservation (NYSDEC)
625 Broadway
Albany, New York 12233-4756

Version: 8

Previous Version Date: 21 March 2018

Summary of Changes to this Version: Updated bureau name to Bureau of Ecosystem Health. Added direction to list the names of all field crew on the collection record. Minor formatting changes on chain of custody and collection records.

Originator or Revised by: Wayne Richter, Jesse Becker

Date: 26 April 2019

Quality Assurance Officer and Approval Date: Jesse Becker, 26 April 2019

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

GENERAL FISH HANDLING PROCEDURES FOR CONTAMINANT ANALYSES

A. Original copies of all continuity of evidence (i.e., Chain of Custody) and collection record forms must accompany delivery of fish to the lab. A copy shall be directed to the Project Leader or as appropriate, Wayne Richter. All necessary forms will be supplied by the Bureau of Ecosystem Health. Because some samples may be used in legal cases, it is critical that each section is filled out completely. Each Chain of Custody form has three main sections:

1. The top box is to be filled out **and signed** by the person responsible for the fish collection (e.g., crew leader, field biologist, researcher). This person is responsible for delivery of the samples to DEC facilities or personnel (e.g., regional office or biologist).

2. The second section is to be filled out **and signed** by the person responsible for the collections while being stored at DEC, before delivery to the analytical lab. This may be the same person as in (1), but it is still required that they complete the section. Also important is the **range of identification numbers** (i.e., tag numbers) included in the sample batch.

3. Finally, the bottom box is to record any transfers between DEC personnel and facilities. Each subsequent transfer should be **identified, signed, and dated**, until laboratory personnel take possession of the fish.

B. The following data are required on each **Fish Collection Record** form:

1. Project and Site Name.

2. DEC Region.

3. All personnel (and affiliation) involved in the collection.

4. Method of collection (gill net, hook and line, etc.)

5. Preservation Method.

C. The following data are to be taken on each fish collected and recorded on the **Fish Collection Record** form:

1. Tag number - Each specimen is to be individually jaw tagged at time of collection with a unique number. Make sure the tag is turned out so that the number can be read without opening the bag. Use tags in sequential order. For small fish or composite samples place the tag inside the bag with the samples. The Bureau of Ecosystem Health can supply the tags.

2. Species identification (please be explicit enough to enable assigning genus and species). Group fish by species when processing.

3. Date collected.

4. Sample location (waterway and nearest prominent identifiable landmark).

5. Total length (nearest mm or smallest sub-unit on measuring instrument) and weight (nearest g or

smallest sub-unit of weight on weighing instrument). Take all measures as soon as possible with calibrated, protected instruments (e.g. from wind and upsets) and prior to freezing.

6. Sex - fish may be cut enough to allow sexing or other internal investigation, but do not eviscerate. Make any incision on the right side of the belly flap or exactly down the midline so that a left-side fillet can be removed.

D. General data collection recommendations:

1. It is helpful to use an ID or tag number that will be unique. It is best to use metal striped bass or other uniquely numbered metal tags. If uniquely numbered tags are unavailable, values based on the region, water body and year are likely to be unique: for example, R7CAY11001 for Region 7, Cayuga Lake, 2011, fish 1. If the fish are just numbered 1 through 20, we have to give them new numbers for our database, making it more difficult to trace your fish to their analytical results and creating an additional possibility for errors.

2. Process and record fish of the same species sequentially. Recording mistakes are less likely when all fish from a species are processed together. Starting with the bigger fish species helps avoid missing an individual.

3. If using Bureau of Ecosystem Health supplied tags or other numbered tags, use tags in sequence so that fish are recorded with sequential Tag Numbers. This makes data entry and login at the lab and use of the data in the future easier and reduces keypunch errors.

4. Record length and weight as soon as possible after collection and before freezing. Other data are recorded in the field upon collection. An age determination of each fish is optional, but if done, it is recorded in the appropriate “Age” column.

5. For composite samples of small fish, record the number of fish in the composite in the Remarks column. Record the length and weight of each individual in a composite. All fish in a composite sample should be of the same species and members of a composite should be visually matched for size.

6. Please submit photocopies of topographic maps or good quality navigation charts indicating sampling locations. GPS coordinates can be entered in the Location column of the collection record form in addition to or instead for providing a map. These records are of immense help to us (and hopefully you) in providing documented location records which are not dependent on memory and/or the same collection crew. In addition, they may be helpful for contaminant source trackdown and remediation/control efforts of the Department.

7. When recording data on fish measurements, it will help to ensure correct data recording for the data recorder to call back the numbers to the person making the measurements.

E. Each fish is to be placed in its own individual plastic bag. For small fish to be analyzed as a composite, put all of the fish for one composite in the same bag but use a separate bag for each composite. It is important to individually bag the fish to avoid difficulties or cross contamination when processing the fish for chemical analysis. Be sure to include the fish’s tag number inside the bag, preferably attached to the fish with the tag number turned out so it can be read. Tie or otherwise secure the bag closed. **The Bureau of Ecosystem Health will supply the bags.** If necessary, food grade bags may be procured from a suitable vendor (e.g., grocery store). It is preferable to redundantly label each bag with a manila tag tied between the knot and the body of the bag. This tag should be labeled with the project name, collection location, tag number, collection date, and fish species. If scales are collected, the scale envelope should be labeled with the same information.

F. Groups of fish, by species, are to be placed in one large plastic bag per sampling location. **<u>The Bureau of Ecosystem Health will supply the larger bags</u>.** Tie or otherwise secure the bag closed. Label the site bag with a manila tag tied between the knot and the body of the bag. The tag should contain: project, collection location, collection date, species and **tag number ranges**. Having this information on the manila tag enables lab staff to know what is in the bag without opening it.

G. Do not eviscerate, fillet or otherwise dissect the fish unless specifically asked to. If evisceration or dissection is specified, the fish must be cut along the exact midline or on the right side so that the left side fillet can be removed intact at the laboratory. If filleting is specified, the procedure for taking a standard fillet (SOP PREPLAB 4) must be followed, including removing scales.

H. Special procedures for PFAS: Unlike legacy contaminants such as PCBs, which are rarely found in day to day life, PFAS are widely used and frequently encountered. Practices that avoid sample contamination are therefore necessary. While no standard practices have been established for fish, procedures for water quality sampling can provide guidance. The following practices should be used for collections when fish are to be analyzed for PFAS:

    No materials containing Teflon.
    No Post-it notes.
    No ice packs; only water ice or dry ice.
    Any gloves worn must be powder free nitrile.
    No Gore-Tex or similar materials (Gore-Tex is a PFC with PFOA used in its manufacture).
    No stain repellent or waterproof treated clothing; these are likely to contain PFCs.
    Avoid plastic materials, other than HDPE, including clipboards and waterproof notebooks.
    Wash hands after handling any food containers or packages as these may contain PFCs. Keep pre-wrapped food containers and wrappers isolated from fish handling.
    Wear clothing washed at least six times since purchase.
    Wear clothing washed without fabric softener.
    Staff should avoid cosmetics, moisturizers, hand creams and similar products on the day of sampling as many of these products contain PFCs (Fujii et al. 2013). Sunscreen or insect repellent should not contain ingredients with “fluor” in their name. Apply any sunscreen or insect repellent well downwind from all materials. Hands must be washed after touching any of these products.

I. All fish must be kept at a temperature <45° F (<8° C) immediately following data processing. As soon as possible, freeze at -20° C ± 5° C. Due to occasional freezer failures, daily freezer temperature logs are required. The freezer should be locked or otherwise secured to maintain chain of custody.

J. In most cases, samples should be delivered to the Analytical Services Unit at the Hale Creek field station. Coordinate delivery with field station staff and send copies of the collection records, continuity of evidence forms and freezer temperature logs to the field station. For samples to be analyzed elsewhere, non-routine collections or other questions, contact Wayne Richter, Bureau of Ecosystem Health, NYSDEC, 625 Broadway, Albany, New York 12233-4756, 518-402-8974, or the project leader about sample transfer. Samples will then be directed to the analytical facility and personnel noted on specific project descriptions.

K. A recommended equipment list is at the end of this document.

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF FISH AND WILDLIFE
FISH COLLECTION RECORD

Project and Site Name ____ DEC Region ____________

Collections made by (include all crew) ____

Sampling Method: ☐Electrofishing ☐Gill netting ☐Trap netting ☐Trawling ☐Seining ☐Angling ☐Other ____________________

Preservation Method: ☐Freezing ☐Other ____________________ Notes (SWFDB survey number): ____________________

FOR LAB USE ONLY- LAB ENTRY NO.	COLLECTION OR TAG NO.	SPECIES	DATE TAKEN	LOCATION	AGE	SEX &/OR REPROD. CONDIT	LENGTH ( )	WEIGHT ( )	REMARKS

richter: revised 2011, 5/7/15, 10/4/16, 3/20/17; becker: 3/23/17, 4/26/19

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
CHAIN OF CUSTODY

I, ______________________________, of ____ collected the
(Print Name) (Print Business Address)

following on ____________________, 20____ from ____
(Date) (Water Body)

in the vicinity of ____
(Landmark, Village, Road, etc.)

Town of ____, in _________________________________ County.

Item(s) ____

____

Said sample(s) were in my possession and handled according to standard procedures provided to me prior to collection. The sample(s) were placed in the custody of a representative of the New York State Department of Environmental Conservation on ____________________________________, 20______.

____ ____________________________
Signature Date

I, __________________________________, received the above mentioned sample(s) on the date specified and assigned identification number(s) ____ to the sample(s). I have recorded pertinent data for the sample(s) on the attached collection records. The sample(s) remained in my custody until subsequently transferred, prepared or shipped at times and on dates as attested to below.

_______________________________________ ___________________
Signature Date

SECOND RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
THIRD RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
FOURTH RECIPIENT (Print Name)	TIME & DATE	PURPOSE OF TRANSFER
SIGNATURE	UNIT	
RECEIVED IN LABORATORY BY (Print Name)	TIME & DATE	REMARKS
SIGNATURE	UNIT	
LOGGED IN BY (Print Name)	TIME & DATE	ACCESSION NUMBERS
SIGNATURE	UNIT	

richter: revised 21 April 2014; becker: 23 March 2017, 26 April, 2019

NOTICE OF WARRANTY

By signature to the chain of custody (reverse), the signatory warrants that the information provided is truthful and accurate to the best of his/her ability. The signatory affirms that he/she is willing to testify to those facts provided and the circumstances surrounding the same. Nothing in this warranty or chain of custody negates responsibility nor liability of the signatories for the truthfulness and accuracy of the statements provided.

HANDLING INSTRUCTIONS

On day of collection, collector(s) name(s), address(es), date, geographic location of capture (attach a copy of topographic map or navigation chart), species, number kept of each species, and description of capture vicinity (proper noun, if possible) along with name of Town and County must be indicated on reverse.

Retain organisms in manila tagged plastic bags to avoid mixing capture locations. Note appropriate information on each bag tag.

Keep samples as cool as possible. Put on ice if fish cannot be frozen within 12 hours. If fish are held more than 24 hours without freezing, they will not be retained or analyzed.

Initial recipient (either DEC or designated agent) of samples from collector(s) is responsible for obtaining and recording information on the collection record forms which will accompany the chain of custody. This person will seal the container using packing tape and writing his signature, the time and the date across the tape onto the container with indelible marker. Any time a seal is broken, for whatever purpose, the incident must be recorded on the Chain of Custody (reason, time, and date) in the purpose of transfer block. Container then is resealed using new tape and rewriting signature, with time and date.

EQUIPMENT LIST

Scale or balance of appropriate capacity for the fish to be collected.

Fish measuring board.

Plastic bags of an appropriate size for the fish to be collected and for site bags.

Individually numbered metal tags for fish.

Manila tags to label bags.

Small envelops, approximately 2” x 3.5”, if fish scales are to be collected.

Knife for removing scales.

Chain of custody and fish collection forms.

Clipboard.

Pens or markers.

Paper towels.

Dish soap and brush.

Bucket.

Cooler.

Ice.

Duct tape.

Appendix G – PFAS Analyte List

Group	Chemical Name	Abbreviation	CAS Number
Perfluoroalkyl sulfonic acids	Perfluorobutanesulfonic acid	PFBS	375-73-5
	Perfluoropentanesulfonic acid	PFPeS	2706-91-4
	Perfluorohexanesulfonic acid	PFHxS	355-46-4
	Perfluoroheptanesulfonic acid	PFHpS	375-92-8
	Perfluorooctanesulfonic acid	PFOS	1763-23-1
	Perfluorononanesulfonic acid	PFNS	68259-12-1
	Perfluorodecanesulfonic acid	PFDS	335-77-3
	Perfluorododecanesulfonic acid	PFDoS	79780-39-5
Perfluoroalkyl carboxylic acids	Perfluorobutanoic acid	PFBA	375-22-4
	Perfluoropentanoic acid	PFPeA	2706-90-3
	Perfluorohexanoic acid	PFHxA	307-24-4
	Perfluoroheptanoic acid	PFHpA	375-85-9
	Perfluorooctanoic acid	PFOA	335-67-1
	Perfluorononanoic acid	PFNA	375-95-1
	Perfluorodecanoic acid	PFDA	335-76-2
	Perfluoroundecanoic acid	PFUnA	2058-94-8
	Perfluorododecanoic acid	PFDoA	307-55-1
	Perfluorotridecanoic acid	PFTrDA	72629-94-8
	Perfluorotetradecanoic acid	PFTeDA	376-06-7
Per- and Polyfluoroether carboxylic acids	Hexafluoropropylene oxide dimer acid	HFPO-DA	13252-13-6
	4,8-Dioxa-3H-perfluorononanoic acid	ADONA	919005-14-4
	Perfluoro-3-methoxypropanoic acid	PFMPA	377-73-1
	Perfluoro-4-methoxybutanoic acid	PFMBA	863090-89-5
	Nonafluoro-3,6-dioxaheptanoic acid	NFDHA	151772-58-6
Fluorotelomer sulfonic acids	4:2 Fluorotelomer sulfonic acid	4:2-FTS	757124-72-4
	6:2 Fluorotelomer sulfonic acid	6:2-FTS	27619-97-2
	8:2 Fluorotelomer sulfonic acid	8:2-FTS	39108-34-4
Fluorotelomer carboxylic acids	3:3 Fluorotelomer carboxylic acid	3:3 FTCA	356-02-5
	5:3 Fluorotelomer carboxylic acid	5:3 FTCA	914637-49-3
	7:3 Fluorotelomer carboxylic acid	7:3 FTCA	812-70-4
Perfluorooctane sulfonamides	Perfluorooctane sulfonamide	PFOSA	754-91-6
	N-methylperfluorooctane sulfonamide	NMeFOSA	31506-32-8
	N-ethylperfluorooctane sulfonamide	NEtFOSA	4151-50-2
Perfluorooctane sulfonamidoacetic acids	N-methylperfluorooctane sulfonamidoacetic acid	N-MeFOSAA	2355-31-9
	N-ethylperfluorooctane sulfonamidoacetic acid	N-EtFOSAA	2991-50-6
Perfluorooctane sulfonamide ethanols	N-methylperfluorooctane sulfonamidoethanol	MeFOSE	24448-09-7
	N-ethylperfluorooctane sulfonamidoethanol	EtFOSE	1691-99-2

Group	Chemical Name	Abbreviation	CAS Number
Ether sulfonic acids	9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (F-53B Major)	9Cl-PF3ONS	756426-58-1
	11-Chloroeicosafluoro-3-oxaundecane-1-sulfonic acid (F-53B Minor)	11Cl-PF3OUdS	763051-92-9
	Perfluoro(2-ethoxyethane) sulfonic acid	PFEESA	113507-82-7

Appendix H - Data Review Guidelines for Analysis of PFAS in Non-Potable Water and Solids

General

These guidelines are intended to be used for the validation of PFAS using EPA Method 1633 for projects within the Division of Environmental Remediation (DER). Data reviewers should understand the methodology and techniques utilized in the analysis. Consultation with the end user of the data may be necessary to assist in determining data usability based on the data quality objectives in the Quality Assurance Project Plan. A familiarity with the laboratory's Standard Operating Procedure may also be needed to fully evaluate the data. If you have any questions, please contact DER's Quality Assurance Officer, Dana Barbarossa, at dana.barbarossa@dec.ny.gov.

Preservation and Holding Time

Samples should be preserved with ice to a temperature of less than 6°C upon arrival at the lab. The holding time is 28 days to extraction for aqueous and solid samples. The time from extraction to analysis for aqueous samples is 28 days and 40 days for solids.

Temperature greatly exceeds 6ºC upon arrival at the lab*	Use professional judgement to qualify detects and non-detects as estimated or rejected
Holding time exceeding 28 days to extraction	Use professional judgement to qualify detects and non-detects as estimated or rejected if holding time is grossly exceeded

*Samples that are delivered to the lab immediately after sampling may not meet the thermal preservation guidelines. Samples are considered acceptable if they arrive on ice or an attempt to chill the samples is observed.

Initial Calibration

The initial calibration should contain a minimum of six standards for linear fit and six standards for a quadratic fit. The relative standard deviation (RSD) for a quadratic fit calibration should be less than 20%.

The low-level calibration standard should be within 50% - 150% of the true value, and the mid-level calibration standard within 70% - 130% of the true value.

%RSD >20%	J flag detects and UJ non detects

Continuing Calibration Verification

Continuing calibration verification (CCV) checks should be analyzed at a frequency of one per ten field samples. If CCV recovery is very low, where detection of the analyte could be in question, ensure a low level CCV was analyzed and use to determine data quality.

CCV recovery <70 or >130%	J flag results

Blanks

There should be no detections in the method blanks above the reporting limits. Equipment blanks, field blanks, rinse blanks etc. should be evaluated in the same manner as method blanks. Use the most contaminated blank to evaluate the sample results.

Blank Result	Sample Result	Qualification
Any detection	<Reporting limit	Qualify as ND at reporting limit
Any detection	>Reporting Limit and >10x the blank result	No qualification
>Reporting limit	>Reporting limit and <10x blank result	J+ biased high

Field Duplicates

A blind field duplicate should be collected at rate of one per twenty samples. The relative percent difference (RPD) should be less than 30% for analyte concentrations greater than two times the reporting limit. Use the higher result for final reporting.

RPD >30%	Apply J qualifier to parent sample

Lab Control Spike

Lab control spikes should be analyzed with each extraction batch or one for every twenty samples. In the absence of lab derived criteria, use 70% - 130% recovery criteria to evaluate the data.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects

Matrix Spike/Matrix Spike Duplicate

One matrix spike and matrix spike duplicate should be collected at a rate of one per twenty samples. Use professional judgement to reject results based on out of control MS/MSD recoveries.

Recovery <70% or >130% (lab derived criteria can also be used)	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only
RPD >30%	Apply J qualifier to detects and UJ qualifier to non detects of parent sample only

Extracted Internal Standards (Isotope Dilution Analytes)

Problematic analytes (e.g. PFBA, PFPeA, fluorotelomer sulfonates) can have wider recoveries without qualification. Qualify corresponding native compounds with a J flag if outside of the range.

Recovery <50% or >150%	Apply J qualifier
Recovery <25% or >150% for poor responding analytes	Apply J qualifier
Isotope Dilution Analyte (IDA) Recovery <10%	Reject results

Signal to Noise Ratio

The signal to noise ratio for the quantifier ion should be at least 3:1. If the ratio is less than 3:1, the peak is discernable from the baseline noise and symmetrical, the result can be reported. If the peak appears to be baseline noise and/or the shape is irregular, qualify the result as tentatively identified.

Reporting Limits

If project-specific reporting limits were not met, please indicate that in the report along with the reason (e.g. over dilution, dilution for non-target analytes, high sediment in aqueous samples).

Peak Integrations

Target analyte peaks should be integrated properly and consistently when compared to standards. Ensure branched isomer peaks are included for PFAS where standards are available. Inconsistencies should be brought to the attention of the laboratory or identified in the data review summary report.

APPENDIX F

Health and Safety Plan

HALEY & ALDRICH, INC.
SITE-SPECIFIC SAFETY PLAN

FOR

91 Bruckner Boulevard Development

Bronx, New York

Project/File No. 0204520

Gensuite EZ Scan®

BI - Developers

Prepared By: Elizabeth R. Scheuerman **Date: 2/6/2022**

Approvals: The following signatures constitute approval of this Health & Safety Plan.

Field Safety Manager: Brian Ferguson **Date: 2/7/2022**

Insert Project Manager's electronic signature.

Project Manager: Emily Snead **Date: 2/7/2022**

HASP Valid Through: 12-31-2022

Table of Contents

Attachments

STOP WORK AUTHORITY

In accordance with Haley & Aldrich (Haley & Aldrich) Stop Work Authority Operating Procedure (OP1035), any individual has the right to refuse to perform work that he or she believes to be unsafe without fear of retaliation. He or she also has the authority, obligation, and responsibility to stop others from working in an unsafe manner.

STOP Work Authority is the stop work policy for all personnel and subcontractors on the Site. When work has been stopped due to an unsafe condition, Haley & Aldrich site management (e.g., Project Manager [PM], Site Health & Safety Officer [SHSO], etc.) and the Haley & Aldrich Senior Project Manager (SPM) will be notified immediately.

Reasons for issuing a stop work order include, but are not limited to:

- The belief/perception that injury to personnel or accident causing significant damage to property or equipment is imminent.
- A Haley & Aldrich subcontractor is in breach of site safety requirements and/or their own site HASP.
- Identifying a substandard condition (e.g., severe weather) or activity that creates an unacceptable safety risk as determined by a qualified person.

Work will not resume until the unsafe act has been stopped OR sufficient safety precautions have been taken to remove or mitigate the risk to an acceptable degree. Stop work orders will be documented as part of an on-site stop work log, on daily field reports to include the activity/activities stopped, the duration, person stopping work, person in-charge of stopped activity/activities, and the corrective action agreed to and/or taken. Once work has been stopped, only the Haley & Aldrich SPM or SHSO can give the order to resume work. Haley & Aldrich senior management is committed to support anyone who exercises his or her “Stop Work” authority.

ISSUANCE AND COMPLIANCE

This HASP has been prepared in accordance with Occupational Safety and Health Administration (OSHA) regulations (CFR 29, Parts 1904, 1910, and 1926) if such are applicable.

The specific requirements of this HASP include precautions for hazards that exist during this project and may be revised as new information is received or as site conditions change.

- This HASP must be signed by all Haley & Aldrich personnel involved in implementation of the SOW (Section 2 of this HASP).
- This HASP, or a current signed copy, must be retained at all times when Haley & Aldrich staff are present.
- Revisions to this HASP must be outlined within the contents of the HASP. If immediate or minor changes are necessary, the Field Safety Manager (FSM), Haley & Aldrich, SSO and/or Project Manager (PM) may use Attachment 1 (HASP Amendment Form), presented at the end of this HASP. Any revision to the HASP requires employees and subcontractors to be informed of the changes so that they understand the requirements of the change.
- Deviations from this HASP are permitted with approval from the Haley & Aldrich FSM, PM, or Senior Health & Safety Manager (SHSM). Unauthorized deviations may constitute a violation of Haley & Aldrich company procedures/policies and may result in disciplinary action.
- This HASP will be relied upon by Haley & Aldrich's subcontractors and visitors to the site. Haley & Aldrich's subcontractors must have their own HASP which will address hazards specific to their trade that is not included in this HASP. This HASP will be made available for review to Haley & Aldrich's subcontractors and other interested parties (e.g. Facility personnel and regulatory agencies) to ensure that Haley & Aldrich has properly informed our subcontractors and others of the potential hazards associated with the implementation of the SOW to the extent that Haley &Aldrich is aware.

This site-specific HASP provides only site-specific descriptions and work procedures. General safety and health compliance programs in support of this HASP (e.g., injury reporting, medical surveillance, personal protective equipment (PPE) selection, etc.) are described in detail in the Haley &Aldrich Corporate Health and Safety Program Manual and within Haley & Aldrich's Standard Operating Procedures Both the manual and SOPs can be located on the Haley & Aldrich's Company Intranet. When appropriate, users of this HASP should always refer to these resources and incorporate to the extent possible. The manual and SOPs are available to clients and regulators upon request.

EMERGENCY EVENT PROCEDURES

1 - ASSESS THE SCENE

- STOP WORK
- Review the situation and ascertain if it's safe to enter the area.
- Evacuate the site if the conditions are unsafe.

2 - EVALUATE THE EMERGENCY

- **Call 911, or designated emergency number, if required.**
- **Provide first aid for the victim if qualified and safe to do so.**
    - First aid will be addressed using the onsite first aid kit. *
        - If providing first aid, remember to use proper first aid universal precautions if blood or bodily fluids are present.
- **If exposure to hazardous substance is suspected, immediately vacate the contaminated area.**
    - Remove any contaminated clothing and/or equipment.
    - Wash any affected dermal/ocular area(s) with water for at least 15 minutes.
    - Seek immediate medical assistance if any exposure symptoms are present.

** Note: Haley & Aldrich employees are not required or expected to administer first aid / CPR to any Haley & Aldrich staff member, Contractor, or Civilian personnel at any time; it is Haley & Aldrich´s position that those who do are doing so on their own behalf and not as a function of their job.*

3 - SECURE THE AREA

- **Cordon off the incident area, if possible.**
    - Notify any security personnel, if required.
    - Escort all non-essential personnel out of the area, if able.

4 - REPORT ON-SITE ACCIDENTS / INCIDENTS TO PM / SSO

- **Notify the PM and SSO as soon as it is safe to do so.**
    - Assist PM and SSO in completing any additional tasks, as required.

5 - INVESTIGATE / REPORT THE INCIDENT

- **Record details of the incident for input to the Gensuite.**
    - Complete any additional forms as requested by the PM and SSO.

6 - TAKE CORRECTIVE ACTION

- **Implement corrective actions per the PM following root cause analysis.**
    - Complete Lessons Learned form.

PROJECT INFORMATION AND CONTACTS	
Project Name: 91 Bruckner Boulevard Development	**Haley & Aldrich File No.:** 0204520
Location: 91 Bruckner Boulevard, Bronx, New York	
Client/Site Contact: Phone Number:	91 Bruckner Boulevard Development/ Yitzi Lesin 845-499-0615
Haley & Aldrich Field Representative: Phone Number: Emergency Phone Number:	Yanxia Lin (201) 912-0052 (917) 765-7035
Haley & Aldrich Project Manager: Phone Number: Emergency Phone Number:	**Emily Snead** (917) 765-7145 (508) 918-8558
Field Safety Manager: Phone Number: Emergency Phone Number:	**Brian Ferguson** (617) 886-7439 (617) 908-2761
Subcontractor Project Manager: Phone Number:	Lorraine Kelly, Lakewood Environmental (631) 257-5321
Nearest Hospital: Address: (see map on next page) Phone Number:	Lincoln Medical Center 234 E 149th St Bronx, NY 10451 (718) 579-5000
Nearest Occ. Health Clinic: http://www.talispoint.com/liberty/ext/ Address: (see map on next page) Phone Number:	City MD Mott Haven Urgent Care 571 E 138th St Bronx, NY 10454 (718) 571-9421
Liberty Mutual Claim Policy	**WC6-Z11-254100-032**
Emergency Response Number:	**911**
Other Local Emergency Response Number:	N/A
Other Ambulance, Fire, Police, or Environmental Emergency Resources:	911 FDNY Engine 83/Battalion 29 618 E 138th St, Bronx, NY 10454

DIRECTIONS TO THE NEAREST HOSPITAL

[Liberty Mutual Medical Location Directory]

Directions to the Nearest Hospital:

91 Bruckner Blvd
Bronx, NY 10454

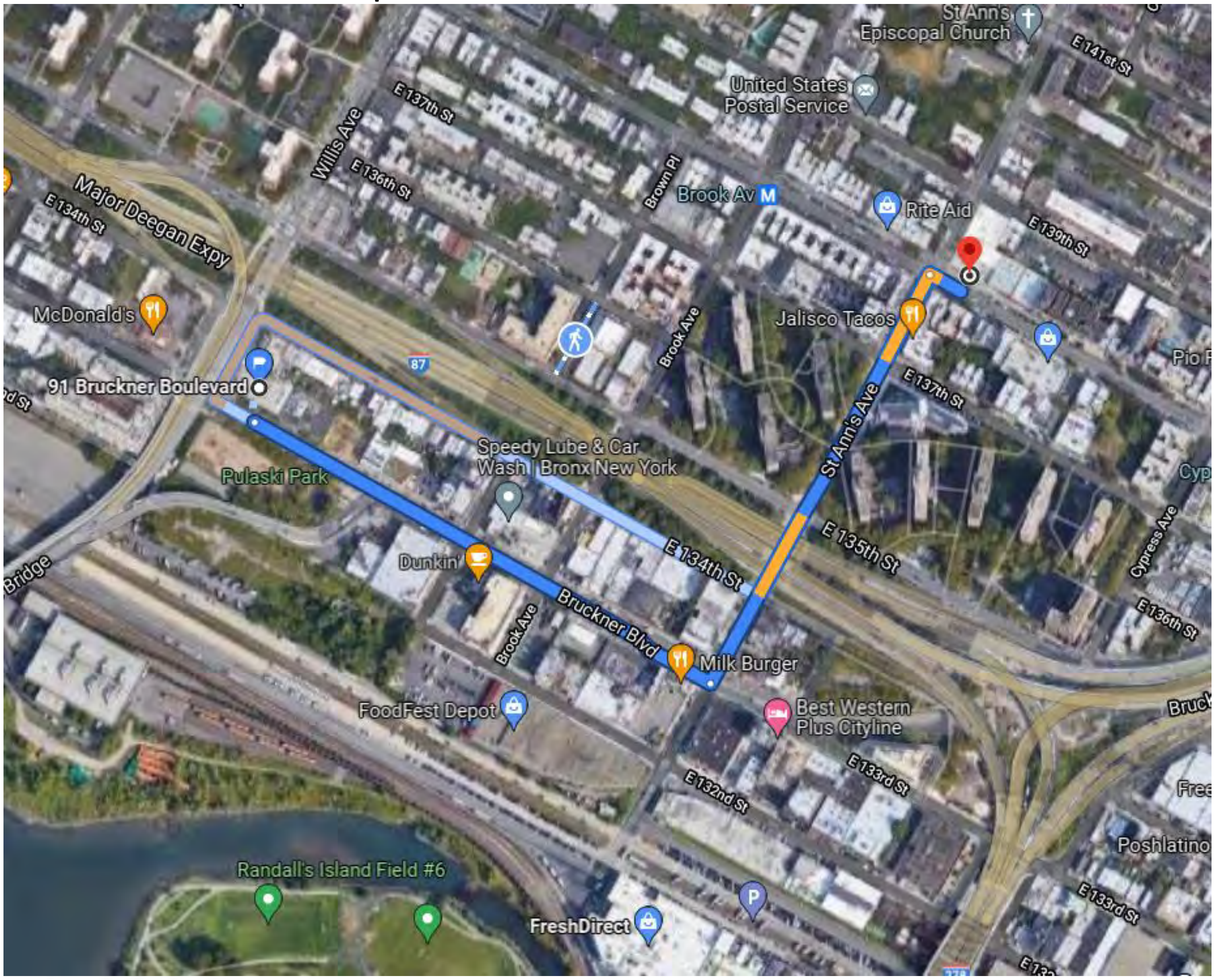
- Head northwest on Bruckner Blvd toward Willis Ave
  0.3 mi
- Turn right onto Lincoln Ave
  0.1 mi
- Turn left onto E 135th St
  0.1 mi
- Turn right onto Rider Ave
  0.5 mi
- Turn right onto E 144th St
  39 ft

Lincoln Medical Center
234 E 149th St, Bronx, NY 10451

DIRECTIONS TO THE NEAREST URGENT CARE

Liberty Mutual Medical Location Directory

Directions to the Nearest Occupational Clinic:



91 Bruckner Blvd
Bronx, NY 10454

- Head southeast on Bruckner Blvd toward Brown Pl
  0.3 mi
- Turn left onto St Ann's Ave
  0.3 mi
- Turn right onto E 138th St/Msgr. Gerald J. Ryan Blvd
  Destination will be on the left
  102 ft

CityMD Mott Haven Urgent Care - Bronx
571 E 138th St, Bronx, NY 10454

1. WORK SCOPE

This Site-Specific Health and Safety Plan addresses the health and safety practices and procedures that will be exercised by all Haley & Aldrich employees participating in all work on the Project Site. This plan is based on an assessment of the site-specific health and safety risks available to Haley & Aldrich and Haley & Aldrich's experience with other similar project sites. The scope of work includes the following:

Work task will include: 1.) Drilling; and, .2) Soil, soil vapor and groundwater sampling.

Project Task Breakdown

Task No.	Task Description	Employee(s) Assigned	Work Date(s) or Duration
1	Drilling	Lin, Yanxia	1 Day Anticipated
2	Soil, soil vapor and groundwater sampling	Lin, Yanxia	1 Day Anticipated

Subcontractor(s) Tasks

Firm Name	Work Activity	Work Date(s) or Duration
Lakewood Environmental	Drilling	1 Day Anticipated

Projected Start Date: 2/8/2022

Projected Completion Date: 2/8/2022

2. SITE OVERVIEW / DESCRIPTION

Site Classification

Residential and Commercial

Site Description

The Site, identified as Block 2278 Lot 1 on the New York City tax map in a residential R6A/M1-2 within a Special Mixed-Use MX-1 district, is 14,500 square feet (sf) and is currently a vacant warehouse. The site is listed current a as of right construction with the filing currently being prepared by the development team.

Background and Historic Site Usage

The Site was first developed between 1903 and 1908. The western portion of the property was initially used for residential and commercial purposes and the eastern portion was used for industrial purposes at least by 1935. By 1985, the western portion of the building was also used for industrial purposes.

Site Status

Indicate current activity status and describe operations at the site:

Inactive

Site Plan

Is a site plan or sketch available? Yes

Work Areas

List and identify each specific work areas(s) on the job site and indicate its location(s) on the site plan:

The entire Site will be utilized as an active work area

Site Plan

Note: This HASP has been developed for Haley & Aldrich purposes only and is not for use by others.

3. HAZARD ASSESSMENT

Indicate all hazards that may be present at the site and for each task. If any of these potential hazards are checked, it is the Project Manager's responsibility to determine how to eliminate / minimize the hazard to protect onsite personnel.

Site Chemical Hazards

Is this Site impacted with chemical contamination? Yes

Source of information about contaminants: Previous Investigation

Contaminant of Concern	Location/Media	Concentration	Units
Barium	**Soil**	**2,100**	**mg/kg**
Lead	**Soil**	**1,410**	**mg/kg**
Mercury	**Soil**	**0.849**	**mg/kg**
Polycyclic aromatic hydrocarbons (PAHs)	**Soil**	**4.17**	**mg/kg**
Tetrachloroethylene	**Soil Vapor**	**246**	**ug/m3**
Choose an item.			
Choose an item.			
Choose an item.			
Choose an item.			

Barium: is a soft, silvery metal that rapidly tarnishes in air and reacts with water. It is mostly used in drilling fluids for oil and gas wells and used in paint and in glassmaking. All barium compounds are toxic; however, barium sulfate is insoluble and so can be safely swallowed. A suspension of barium sulfate is sometimes given to patients suffering from digestive disorders.

Barium has no known biological role, although barium sulfate has been found in one type of algae. Barium is toxic, as are its water- or acid-soluble compounds. Barium occurs only in combination with other elements. The major ores are barite (barium sulfate) and witherite (barium carbonate). Barium metal can be prepared by electrolysis of molten barium chloride, or by heating barium oxide with aluminum powder.

Lead: The effects of lead are the same whether it enters the body through breathing or swallowing. Lead can affect almost every organ and system in your body. The main target for lead toxicity is the nervous system. Long-term exposure to lead can result in decreased performance in some tests measuring functions of the nervous system in adults. It may also cause weakness in fingers, wrists, or ankles. Lead exposure also causes small increases in blood pressure, particularly in middle-aged and older people and can cause anemia. Exposure to high lead levels can severely damage the brain and kidneys and ultimately cause death.

Mercury: is an odorless, silver metallic liquid. It can be inhaled or absorbed through the skin. Contact may cause irritation to the skin or eyes. Toxic if ingested. Fume inhalation may cause irritation in the nose, throat or lungs. This is a corrosive chemical. Symptoms of poisoning include, muscle tremors, loss of appetite, and nausea. Long-term exposure may have effects on the central nervous system and kidneys. The PEL is 0.1 mg/m^3 averaged over an 8 hour shift.

Polycyclic aromatic hydrocarbons (PAHs): are a class of chemicals that occur naturally in coal, crude oil, and gasoline. They also are produced when coal, oil, gas, wood, garbage, and tobacco are burned. PAHs generated from these sources can bind to or form small particles in the air. High-temperature cooking will form PAHs in meat and in other foods. Naphthalene is a PAH that is produced commercially in the United States to make other chemicals and mothballs. Cigarette smoke contains many PAHs.

Tetrachloroethylene: is a colorless liquid with a sharp sweet odor. Tetrachloroethylene vapor is heavier than air and will be found in low lying areas.

Click + Add Additional Chemical Language
Click + Add Additional Chemical Language
Click + Add Additional Chemical Language

Site Hazards Checklist

Weather			
Cold Temperatures	High Winds	Select Hazard	Select Hazard

Cold Temperatures

Cold stress may occur at any time work is being performed at low ambient temperatures and high velocity winds. Because cold stress is common and has potentially serious illnesses associated with outdoor work during cold seasons, regular monitoring and other preventative measures are vital.

Refer to OP1003-Cold Stress for additional information and mitigation controls.

High Winds

While high winds are commonly associated with severe thunderstorms and hurricanes they may also occur as a result of differences in air pressures, such as when a cold front passes across the area. They can cause downed trees and power lines, and flying debris (such as dust or larger debris), which adds additional risks and could lead to power outages, transportation disruptions, damage to buildings and vehicles, and serious injury.

Wind Advisory are issued for sustained winds 25 to 39 mph and/or gusts to 57 mph. High Wind warnings are issued by the National Weather Service when high wind speeds may pose a hazard or is life threatening. The criteria for this warning will varies by state. The Beaufort Wind Scale is a helpful tool to when dealing with high winds.

Biological			
Mosquitoes	Stinging Insects	Choose an item.	Choose an item.

Mosquitos

Work outdoors with temperatures above freezing will likely bring staff into contact with mosquitos. There are a variety of mosquito species that can transmit a range of diseases. Birds act as reservoirs for the viruses that can be collected by the mosquito and transmitted to a person. Majority of mosquitos are mainly a nuisance but staff need to take appropriate precautions to minimize the potential transmission of a virus that can result in one of the following diseases: West Nile, Eastern Equine Encephalitides and Western Encephalitides. Knowing some key steps that can minimize the risk of mosquito bites is, therefore, important in reducing the risks. Workers working outdoors should be aware that the use of PPE techniques is essential to preventing mosquito bites especially when working at sites where mosquitoes may be active and biting.

Use repellents containing DEET, picaridin, IR3535, and some oil of lemon eucalyptus and para-menthane-diol products provide longer-lasting protection. To optimize safety and effectiveness, repellents should be used according to the label instructions. Cover as much of your skin as possible by wearing shirts with long-sleeves, long pants, and socks whenever possible. Avoid use of perfumes and colognes when working outdoors during peak times when mosquitoes may be active; mosquitoes may be more attracted to individuals wearing perfumes and colognes.

Stinging Insects

Stinging Insects fall into two major groups: Apidae (honeybees and bumblebees) and vespids (wasps, yellow jackets, and hornets). Apidae are docile and usually do not sting unless provoked. The stinger of the honeybee has multiple barbs, which usually detach after a sting. Vespids have few barbs and can inflict multiple stings.

There are several kinds of stinging insects that might be encountered on the project site. Most stings will only result in a temporary injury. However, sometimes the effects can be more severe, even life-threatening depending on where you are stung and what allergies you have. Being stung in the throat area of the neck may cause edema (swelling caused by fluid build-up in the tissues) around the throat and may make breathing difficult.

In rare cases, a severe allergic reaction can occur. This can cause "anaphylaxis" or anaphylactic shock with symptoms appearing immediately or up to 30 minutes later. Symptoms include; Hives, itching and swelling in areas other than the sting site, swollen eyes/eyelids, wheezing, chest tightness, difficulty breathing, hoarse voice, swelling of the tongue, dizziness or sharp drop in blood pressure, shock, unconsciousness or cardiac arrest. Reactions can occur the first time you are stung or with subsequent stings. If you see any signs of reaction, or are unsure, call or have a co-worker call emergency medical services (e.g., 911) right away. Get medical help for stings near the eyes, nose or throat. Stay with the person who has been stung to monitor their reaction.

Staff who are allergic to bee stings are encouraged to inform their staff/project manager. If staff member carries an Epi-pen (i.e., epinephrine autoinjector) they are encouraged to inform their colleagues in case they are stung and are incapable of administering the injection. Examine site for any signs of activity or a hive/nest. If you see several insects flying around, see if they are entering/exiting from the same place. Most will not sting unless startled or attacked. Do not swat, let insects fly away on their own. If you must, walk away slowly or gently "blow" them away. If a nest is disturbed and you hear "wild" buzzing, protect your face with your hands and run from the area immediately. Wear long sleeves, long pants, and closed-toed boots. Wear light colored clothes such as khakis. Avoid brightly colored, patterned, or black clothing. Tie back long hair to avoid bees or wasps from entanglement. Do not wear perfumes, colognes or scented soaps as they contain fragrances that are attractive. If bee or wasp is found in your car, stop and leave windows open.

Location/Terrain			
Slip/Trip/Falls	Choose an item.	Choose an item.	Choose an item.

Slips, Trips & Falls

Slip and trip injuries are the most frequent injuries to workers. Statistics show most falls happen on the same level resulting from slips and trips. Both slips and trips result from unintended or unexpected change in the contact between the feet and the ground or walking surface. Good housekeeping, quality of walking surfaces (flooring), awareness of surroundings, selection of proper footwear, and appropriate pace of walking are critical for preventing fall accidents.

Site workers will be walking on a variety of irregular surfaces, that may affect their balance. Extra care must be taken to walk cautiously near rivers because the bottom of the riverbed maybe slick and may not be visible. Rocks, gradient changes, sandy bottoms, and debris may be present but not observable.

Take your time and pay attention to where you are going. Adjust your stride to a pace that is suitable for the walking surface and the tasks you are doing. Check the work area to identify hazards - beware of trip hazards such as wet floors, slippery floors, and uneven surfaces or terrain. Establish and utilize a pathway free of slip and trip hazards. Choose a safer walking route. Carry loads you can see over. Keep work areas clean and free of clutter. Communicate hazards to on-site personnel and remove hazards as appropriate.

Miscellaneous			
Choose an item.	Choose an item.	Choose an item.	Choose an item.

Click + to Add Additional Hazard Language

Task Hazard Summary

Task 1 – Drilling

Drilling is conducted for a range of services that can include but are not limited to: soil characterization, environmental investigation, well installation, and ore exploration. Familiarity with basic drilling safety is an essential component of all drilling projects. Potential hazards related to drilling operations include, but are not limited to encountering underground or overhead utilities, traffic and heavy equipment, hoisting heavy tools, steel impacts, open rotation entanglement, and the planned or unexpected encountering of toxic or hazardous substances. While staff members do not operate drilling equipment, they may work in close proximity to operating drilling equipment and may be exposed to many of the same hazards as the drilling subcontractor. It is imperative that staff are aware of emergency stops and establish communication protocols with the drillers prior to the start of work.

See OP 1002 Drilling Safety for more information.

Task 2A – Soil Sampling

Soil sampling by H&A staff on active construction sites can be conducted in conjunction with a wide range activities such as building construction, earthwork and soil management related activities. These activities can include, but are not limited to: drill spoil characterization and management during building foundation element installation, characterization of excavated soils for management/disposal/reuse during earthwork activities, and as part of environmental remedial activities such as delineation and confirmation sampling. Familiarity with basic heavy construction safety, site conditions (geotechnical and environmental), and potential soil contaminants are essential components of soil sampling performed on active sites. Potential hazards related to soil sampling at construction sites include, but are not limited to: encountering site vehicle traffic and heavy equipment operations, manual lifting, generated waste, contact or exposure to impacted soil, and encountering unknown toxic or hazardous substances. Although soil sampling is commonly performed within active excavations, from stockpiles, or within trench excavations, sampling locations and situations will vary depending on site conditions. Care should be taken while entering and exiting excavations or trenches, and when accessing (climbing up or down) soil stockpiles, ensuring that the sampling area is not being actively accessed by construction equipment. Care should also be taken with handling of potentially environmentally impacted soil during sampling, with appropriate PPE identified and used. At no time during classification activities are personnel to reach for debris near machinery that is in operation, place any samples in their mouth, or come in contact with the soils without the use of gloves. Staff will have to carry and use a variety of sampling tools, equipment, containers, and potentially heavy sample bags. It is imperative that staff are aware of emergency / communication protocols with the Contractor prior to the start of work.

Task 2B – Water Sampling

Environmental water sampling could include activities such as groundwater sampling from permanent or temporary wells, or surface water sampling from streams, rivers, lakes, ponds, lagoons, and surface impoundments.

Sampling tasks could involve uncapping, purging (pumping water out of the well), and sampling, and/or monitoring, new or existing monitoring wells. A mechanical pump may be used to purge the wells and can be hand-, gas-, or electric-operated. Water samples taken from the wells are then placed in containers and shipped to an analytical laboratory for analysis. The physical hazards of these operations are primarily associated with the collection methods and procedures used.

When sampling bodies of water containing known or suspected hazardous substances, adequate precautions must be taken to ensure the safety of sampling personnel. The sampling team member collecting the sample should not get too close to the edge, where ground failure or slips, trips or falls may cause him/her to lose his/her balance. The person performing the sampling should have fall restraint or protection for the task. When conducting sampling from a boat in an impoundment or flowing waters, appropriate vessel safety procedures should be followed. Avoid lifting heavy coolers with back muscles; instead, use ergonomic lifting techniques, team lift or mechanical lifts. Wear proper gloves, such as when handling sample containers to avoid contacting any materials that may have spilled out of the sample containers.

Inhalation and absorption of COCs are the primary routes of entry associated with water sampling, due to the manipulation of sample media and equipment, manual transfer of media into sample containers, and proximity of operations to the breathing zone. During this project, several different groundwater sampling methodologies may be used based on equipment accessibility and the types of materials to be sampled. These sampling methods may include hand or mechanical bailing. The primary hazards associated with these specific sampling procedures are not potentially serious; however, other operations in the area or the conditions under which samples must be collected may present chemical and physical hazards. The hazards directly associated with groundwater sampling procedures are generally limited to strains or sprains from hand bailing, and potential eye hazards. Exposure to water containing COCs is also possible. All tools and equipment that will be used at the site must be intrinsically safe (electronics and electrical equipment) and non-sparking or explosion-proof (hand tools).

Task 2C – Soil Vapor

Soil gas sampling is employed as an indirect indicator of contamination in soil or groundwater particularly over and around landfill waste sites, or groundwater plumes. Soil gas sampling points can be installed manually using a slam bar or power driven mechanical devices (e.g., demolition hammer or Geoprobe) may be used based on site conditions (i.e., pavement, frozen ground, very dense clays, etc.). Soil gas samples can be drawn through the probe itself, or through Teflon tubing inserted through the probe and attached to the probe point. Samples are collected and analyzed as described below. Other field air monitoring devices, such as the Combustible Gas Indicator (CGI) and the Organic Vapor Analyzer (OVA), can also be used, depending on specific site conditions.

Because the sample is being drawn from underground, and no contamination is introduced into the breathing zone, soil gas sampling usually occurs in Level D. Nevertheless, ambient air should be constantly monitored to obtain background and breathing zone readings during the sampling procedure in the event the seal around the sampling point is breached. As long as the levels in ambient air do not rise above background, no upgrade of the level of protection is needed. Also, an underground utility search must be performed prior to sampling.

Task Physical Hazards Checklist				
Potential Task Hazards	**Task 1** **Drilling**	**Task 2** **Soil, Soil Vapor, Groundwater Sampling**	Task Name	Task Name
Noise	☒	☐	☐	☐
Heavy Equipment	☒	☐	☐	☐
Hot Work	☒	☒	☐	☐
Slippery Surfaces	☒	☒	☐	☐
Ergonomics	☒	☒	☐	☐
Congested Area	☒	☒	☐	☐
Ground Disturbance	☒	☐	☐	☐
Line of Fire	☒	☐	☐	☐
Manual Lifting	☒	☒	☐	☐
Sharp Objects	☒	☒	☐	☐
Underground Utilities	☒	☐	☐	☐
Other: Specify	☐	☐	☐	☐

Summary of Physical Hazards & Controls

Noise

Working around heavy equipment (drill rigs, excavators, etc.) often creates excessive noise. The effects of noise include physical damage to the ear, pain, and temporary and/or permanent hearing loss. Workers can also be startled, annoyed, or distracted by noise during critical activities. Noise monitoring data that indicates that working within 25 feet of operating heavy equipment result in exposure to hazardous levels of noise (levels greater than 85 dBA).

See OP 1031 Hearing Conservation for additional information.

Controls

- Personnel are required to use hearing protection (earplugs or earmuffs) within 25 feet of any operating piece of heavy equipment.
- Limit the amount of time spent at a noise source.
- Move to a quiet area to gain relief from hazardous noise sources.
- Increase the distance from the noise source to reduce exposure.

Heavy Equipment

Staff must be careful and alert when working around heavy equipment, failure or breakage and limited visibility can lead to accidents and worker injury. Heavy equipment such as cranes, drills, haul trucks, or other can fail during operation increasing chances of worker injury. Equipment of this nature shall be visually inspected and checked for proper working order prior to commencement of field work. Those operating heavy equipment must meet all requirements to operate the equipment. Haley & Aldrich, Inc. staff that supervise projects or are associated with high risk projects that involve digging or drilling should use due diligence when working with a construction firm.

See OP1052 Heavy Equipment for additional information.

Controls

- Only approach equipment once you have confirmed contact with the operator (e.g., operator places the bucket on the ground).
- Always maintain visual contact with operators and keep out of the strike zone whenever possible.
- Always be alert to the position of the equipment around you.
- Always approach heavy equipment with an awareness of the swing radius and traffic routes of all equipment and never go beneath a hoisted load.
- Avoid fumes created by heavy equipment exhaust.

Hot Work

Hot work is any work that could produce a source of ignition or temperature high enough to cause the ignition of flammable gases and combustible materials. Hot work activities include burning, welding, grinding, braising, soldering, using fire or spark-producing tools. The main hazards associated with hot work are getting burned directly by the hot work activity or by fires or explosions that result from an accumulation of combustible materials in the work area.

Performing hot work in Classified and Non-Classified areas are considered a hazardous activity, and a Permit to Work may be required. In general, the Hot Work Permit has five purposes:

- To serve as written permission to do the work;
- To provide a minimum checklist prior to the commencement of hot work;
- To outline the steps necessary for making the work site safe for conducting hot work;
- To alert operating personnel to the hot work in progress; and
- To provide a record of safe work practices performed during the permitted activity.

Work shall be conducted in accordance with OP1034 Hot Work.

Controls

- Hot Work Permit must be completed.
- Conduct a risk assessment of the proposed work area to identify combustible or flammable material.
- If potential for flammable gases exists in the work area they must be monitored with a gas detector prior to starting any hot work.
- The hot work equipment shall be in satisfactory operating condition and in good repair.
- All combustible and flammable materials shall be relocated at least 35' in all directions from the work site.

If relocating these materials is impractical, the following precautions shall be taken:

- Materials shall be shielded with fire-retardant covers or metal or fire-retardant guards or curtains.
- The edges of covers at the floor shall be tight to prevent the entrance of sparks, including at the point where several covers overlap when a large pile is being protected.
- A fire watch may be required.
- A fully charged and operable fire extinguisher appropriate for the type of potential fire shall be available for use in the work area (20lbs minimum).
- A nonflammable, impervious material shall seal sewer openings, ducts and drains. Where sealing is insecure or impractical, water spray or stream should be directed across openings.
- The location of the hot work relative to combustible and flammable materials and classified areas shall determine the need for a fire watch
- Personnel within the vicinity of the hot work shall be suitably protected against such dangers as heat, sparks, flash and slag.

Slippery Surfaces

Both slips and trips result from unintended or unexpected change in the contact between the feet and ground or walking surface. Good housekeeping, quality of walking surfaces, selection of proper footwear, and appropriate pace of walking are critical for preventing fall accidents. Slips happen where there is too little friction or traction between the footwear and walking surface.

Common causes of slips are wet or oily surfaces, spills, weather hazards, loose unanchored rugs or mats and flooring or other walking surfaces that do not have same degree of traction in all areas.

Weather-related slips and falls become a serious hazard as winter conditions often make for wet or icy surfaces outdoors. Even wet organic material or mud can create hazardous walking conditions. Spills and leaks can also lead to slips and falls.

Controls

- Evaluate the work area to identify any conditions that may pose a slip hazard.

- Address any spills, drips or leaks immediately.
- Mark areas where slippery conditions exist.
- Select proper footwear or enhance traction with additional PPE.
- Where conditions are uncertain or environmental conditions result in slippery surfaces walk slowly, take small steps, and slide feet on wet or slippery surfaces.

Ergonomics

Most Work-related Musculoskeletal Disorders (WMSDs) are caused by Ergonomic Stressors. Ergonomic Stressors are caused by poor workplace practices and/or insufficient design, which may present ergonomic risk factors. These stressors include, but not limited to, repetition, force, extreme postures, static postures, quick motions, contact pressure, vibration, and cold temperatures.
WMSDs are injuries to the musculoskeletal system, which involves bones, muscles, tendons, ligaments, and other tissues in the system. Symptoms may include numbness, tightness, tingling, swelling, pain, stiffness, fatigue, and/or redness. WMSD are usually caused by one or more Ergonomic Stressors. There may be individual differences in susceptibility and symptoms among employees performing similar tasks. Any symptoms are to be taken seriously and reported immediately.

See OP1053 Ergonomics for more information.

Controls

- Ensure workstations are ergonomically correct so bad posture is not required to complete tasks.
- Take periodic breaks over the course of the day.
- Stretch during break times.
- Break up tasks that require repetitive motion.
- Contact Corporate H&S with any ergonomic concerns

Congested Areas

Working in congested areas can expose both workers and the public to a wide range of hazards depending upon the specific activities taking place. Staff Members need to understand the work scope, work areas, equipment on-site, and internal traffic patterns to minimize or eliminate exposure potential.

Controls

- Provide barricades, fencing, warning signs/signals and adequate lighting to protect people while working in or around congested areas.
- Vehicles and heavy equipment with restricted views to the rear should have functioning back-up alarms that are audible above the surrounding noise levels. Whenever possible, use a signaler to assist heavy equipment operators and/or drivers in backing up or maneuvering in congested areas.
- Lay out traffic control patterns to eliminate excessive congestion.
- Workers in congested areas should always wear high visibility clothing.
- Be aware of Line of Fire hazards when performing work activities in congested areas.
- Hazards associated with SIMOPs should be discussed daily at Tailgate Safety Meetings.

Ground Disturbance

Ground disturbance is defined as any activity disturbing the ground. Ground disturbance activities include, but are not limited to, excavating, trenching, drilling (either mechanically or by hand), digging, plowing, grading, tunneling and pounding posts or stakes.

Because of the potential hazards associated with striking an underground utility or structure, the operating procedure for underground utility clearance shall be followed prior to performing any ground disturbance activities.

See OP1020 Working Near Utilities

Controls

Prior to performing ground disturbance activities, the following requirements should be applied:

- Confirm all approvals and agreements (as applicable) either verbal or written have been obtained.
- Request for line location has been registered with the applicable One-Call or Dial Before You Dig organization, when applicable.
    - Whenever possible, ground disturbance areas should be adequately marked or staked prior to the utility locators site visit.
- Notification to underground facility operator/owner(s) that may not be associated with any known public notification systems such as the One-Call Program regarding the intent to cause ground disturbance within the search zone.
- Notifications to landowners and/or tenant, where deemed reasonable and practicable.
- Proximity and Common Right of Way Agreements shall be checked if the line locator information is inconclusive.

Line of Fire

Line of fire refers to the path an object will travel. Examples of line of fire situations typically observed on project sites include lifting/hoisting, lines under tension, objects that can fall or roll, pressurized objects or lines, springs or stored energy, work overhead, vehicles and heavy equipment.

Controls

- Never walk under a suspended load.
- Be aware and stay clear of tensioned lines such as cable, chain and rope.
- Be cautious of torque stresses that drilling equipment and truck augers can generate. Equipment can rotate unexpectedly long after applied torque force has been stopped.
- Springs and other items can release tremendous energy if compressed and suddenly released
- Items under tension and pressure can release tremendous energy if it is suddenly released.
- Not all objects may be overhead; be especially mindful of top-heavy items and items being transported by forklift or flatbed.
- Secure objects that can roll such as tools, cylinders, and pipes.
- Stay clear of soil cuttings or soil stockpiles generated during drilling operations and excavations, be aware that chunks of soil, rocks, and debris can fall or roll.

Manual Lifting/Moving

Most materials associated with investigation, remedial, or construction-related activities are moved by hand. The human body is subject to damage in the forms of back injury, muscle strains, and hernia if caution is not observed in the handling process.

Controls

- Under no circumstances should any one person lift more than 49 pounds unassisted.
- Always push, not pull, the object when possible.

- Size up the load before lifting. If it is heavy or clumsy, get a mechanical aid or help from a worker.
- Bend the knees; it is the single most important aspect of lifting.
- When performing the lift:
  - Place your feet close to the object and center yourself over the load.
  - Get a good handhold.
  - Lift straight up, smoothly and let your legs do the work, not your back!
  - Avoid overreaching or stretching to pick up or set down a load.
  - Do not twist or turn your body once you have made the lift.
  - Make sure beforehand that you have a clear path to carry the load.
  - Set the load down properly.

Sharp Objects

Workers who handle sharp edged objects like sheets of steel or glass are at risk of cuts. Workers who handle sharp edged objects are also at risk of cuts. Injuries may occur to hands, fingers, or legs when they are in the way of the blade, when the blade slips, or if an open blade is handled unexpectedly. Other hazards at job sites include stepping on sharp objects (e.g. wooden boards with protruding nails, sharp work-tools, chisels, etc.) and colliding with sharp and/or protruding objects.

Controls

Always be alert when handling sharps. Never look away or become distracted while handling sharp objects. Use caution when working with tools; use right tool for the job. Keep tools sharp, dull blades are a safety hazard, requiring more force to make cuts which can lead to tool slippage. Wear appropriate PPE and do not handle sharp objects (i.e., broken glass) with bare hands. Use mechanical devices, when possible. Stay away from building debris; avoid handling site debris or placing your hand where you cannot see. Watch out for barbed wire and electrical fences; cover with a car mat or equivalent to cross or walk around; use the buddy system to avoid entanglement; wear gloves. Do not leave unprotected sharps unattended. Use protective shields, cases, styrofoam blocks, etc. Pass a sharp by handing it over carefully by the handle with the blade down or retracted. Fixed open blades are prohibited. Always cut away from the body, making several passes when cutting thicker materials. Make sure blades are fitted properly into the knife. Never cut items with a blade or other sharp object on your lap. Never try to catch a blade or cutting tool that is falling.

Underground Utilities

Various forms of underground/overhead utility lines or conveyance pipes may be encountered during site activities. Prior to the start of intrusive operations, utility clearance is mandated, as well as obtaining authorization from all concerned public utility department offices. Should intrusive operations cause equipment to come into contact with utility lines, the SHSO, Project Manager, and Regional H&S Manager shall be notified immediately. Work will be suspended until the client and applicable utility agency is contacted and the appropriate actions for the situation can be addressed.
See OP1020 Work Near Utilities for complete information.

Controls

- Obtain as-built drawings for the areas being investigated from the property owner;
- Visually review each proposed soil boring locations with the property owner or knowledgeable site representative;
- Perform a geophysical survey to locate utilities;
- Hire a private line locating firm to determine location of utility lines that are present at the property;

- Identifying a no-drill or dig zone;

Hand dig or use vacuum excavation in the proposed ground disturbance locations if insufficient data is unavailable to accurately determine the location of the utility lines.

4. PROTECTIVE MEASURES

The personal protective equipment and safety equipment (if listed) is specific to the associated task. The required PPE and equipment listed must be onsite during the task being performed. Work shall not commence unless the required PPE or Safety Equipment is present.

Required Safety & Personal Protective Equipment

Required Personal Protective Equipment (PPE)	**Task 1**	**Task 2**		
	Drilling	Soil, Soil Vapor, And Groundwater Sampling	Enter task description.	Enter task description.
Sampling Glasses	☒	☒	☐	☐
Safety Toed Shoes	☒	☒	☐	☐
Hearing Protection	☒	☐	☐	☐
Class 2 Safety Vest	☒	☒	☐	☐
Face Shield	☒	☒	☐	☐
Level of protection required	D	D	Select	Select
Required Safety Equipment				
First Aid Kit	☒	☒	☐	☐

5. TRAINING REQUIREMENTS

The table below lists the training requirements staff must have respective to their assigned tasks and that are required to access the Site.

Site Specific Training Requirements
HAZWOPER - 40 Hour (Initial)
HAZWOPER - 8 Hour (Annual Refresher)

Task Specific Training Requirements

Required Training Type	**Task 1**	**Task 2**	**Task 3**	**Task 4**
	Drilling	Soil, Soil Vapor, And Groundwater Sampling	Enter task description.	Enter task description.
HAZWOPER - 40 Hour (Initial); HAZPOWER -8 Hour (Annual Refresher); and Site - Specific Orientation	☒	☒	☐	☐

6. AIR MONITORING PLAN AND EQUIPMENT

Exposures to airborne substances shall be fully characterized throughout project operations to ensure that exposure controls are effectively selected and modified as needed.

Is air/exposure monitoring required at this work site for personal protection? No

Is perimeter monitoring required for community protection? No

Air monitoring plan not applicable? No

7. DECONTAMINATION & DISPOSAL METHODS

All possible and necessary steps shall be taken to reduce or minimize contact with chemicals and contaminated/impacted materials while performing field activities (e.g., avoid sitting or leaning on, walking through, dragging equipment through or over, tracking, or splashing potential or known contaminated/impacted materials.)

Personal Hygiene Safeguards

The following minimum personal hygiene safeguards shall be adhered to:

1. No smoking or tobacco products in any project work areas.
2. No eating or drinking in the exclusion zone.
3. It is required that personnel present on site wash hands before eating, smoking, taking medication, chewing gum/tobacco, using the restroom, or applying cosmetics and before leaving the site for the day.

It is recommended that personnel present on site shower or bathe at home at the end of each day of working on the site.

Decontamination Supplies

All decontamination should be conducted at the project site in designated zones or as dictated by Client requirements. Decontamination should not be performed on Haley & Aldrich owned or leased premises.

☐ Acetone	☒ Distilled Water	☐ Polyethylene Sheeting
☒ Alconox Soap	☐ Drums	☐ Pressure/Steam Cleaner
☐ Brushes	☐ Hexane	☒ Tap Water
☒ Disposal Bags	☐ Methanol	☐ Wash tubs
☒ 5 Gallon Buckets	☒ Paper Towels	☐ Other: Specify

Location of Decontamination Station

Decontamination will take place prior to leaving the Site at the exit.

Standard Personal Decontamination Procedures

Outer gloves and boots should be decontaminated periodically as necessary and at the end of the day. Brush off solids with a hard brush and clean with soap and water or other appropriate cleaner whenever possible. Remove inner gloves carefully by turning them inside out during removal. Wash hands and forearms frequently. It is good practice to wear work-designated clothing while on-site which can be removed as soon as possible. Non-disposable overalls and outer work clothing should be bagged onsite prior to laundering. If gross contamination is encountered on-site contact the Project Manager and Field Safety Manager to discuss proper decontamination procedures.

The steps required for decontamination will depend upon the degree and type of contamination but will generally follow the sequence below.

1. Remove and wipe clean hard hat
2. Rinse boots and gloves of gross contamination
3. Scrub boots and gloves clean
4. Rinse boots and gloves
5. Remove outer boots (if applicable)
6. Remove outer gloves (if applicable)
7. Remove Tyvek coverall (if applicable)
8. Remove respirator, wipe clean and store (if applicable)
9. Remove inner gloves (if outer gloves were used)

PPE that is not grossly contaminated can be bagged and disposed in regular trash receptacles.

Small Equipment Decontamination

Pretreatment of heavily contaminated equipment may be conducted as necessary:

1. Remove gross contamination using a brush or wiping with a paper towel
2. Soak in a solution of Alconox and water (if possible)
3. Wipe off excess contamination with a paper towel

Standard decontamination procedure:

4. Wash using a solution of Alconox and water
5. Rinse with potable water
6. Rinse with methanol (or equivalent)
7. Rinse with distilled/deionized water

Inspect the equipment for any remaining contamination and repeat as necessary.

Disposal Methods

Procedures for disposal of contaminated materials, decontamination waste, and single use personal protective equipment shall meet applicable client, locate, State, and Federal requirements.

Disposal of Single Use Personal Protective Equipment

PPE that is not grossly contaminated can be bagged and disposed in regular trash receptacles. PPE that is grossly contaminated must be bagged (sealed and field personnel should communicate with the Project Manager to determine proper disposal.

- Contaminated soil cuttings and spoils must be containerized for disposal off-site unless otherwise specifically directed.
- Soil cuttings and spoils determined to be free of contamination through field screening can usually be returned to the boreholes or excavations from which they came.

8. SITE CONTROL

The overall purpose of site control is to minimize potential contamination of workers, protect the public from the site's hazards, and prevent vandalism. Site control is especially important in emergency situations. The degree of site control necessary depends on site characteristics, site size, and the surrounding community. The following information identifies the elements used to control the activities and movements of people and equipment at the project site.

Communication
Internal Haley & Aldrich site personnel will communicate with other Haley & Aldrich staff member and/or subcontractors or contractors with: Face to Face Communication
External H&S site personnel will use the following means to communicate with off-site personnel or emergency services. Cellular Phones
Visitors
Project Site Will visitors be required to check-in prior to accessing the project site? Yes
Visitor Access Authorized visitors that require access to the project site need to be provided with known information with respect to the site operations and hazards as applicable to the purpose of their site visit. Authorized visitors must have the required PPE and appropriate training to access the project site. Zachary Simmer is responsible for facilitating authorized visitor access.
Zoning
Work Zone The work zone will be clearly delineated to ensure that the general public or unauthorized worker access is prevented. The following will be used: Cones, locked doors/gates

9. SITE SPECIFIC EMERGENCY RESPONSE PLAN

The Emergency Response Plan addresses potential emergencies at this site, procedures for responding to these emergencies, roles, responsibilities during emergency response, and training. This section also describes the provisions this project has made to coordinate its emergency response with other contractors onsite and with offsite emergency response organizations (as applicable).

During the development of this emergency response plan, local, state, and federal agency disaster, fire, and emergency response organizations were consulted (if required) to ensure that this plan is compatible and integrated with plans of those organizations. Documentation of the dates of these consultations are the names of individuals contacted is kept on file and available upon request.

The site has been evaluated for potential emergency occurrences, based on site hazards, and the major categories of emergencies that could occur during project work are:

- Fire(s)/Combustion
- Hazardous Material Event
- Medical Emergency
- Natural Disaster

A detailed list of emergency types and response actions are summarized in Table X below. Prior to the start of work, the SSO will update the table with any additional site-specific information regarding evacuations, muster points, or additional emergency procedures. The SSO will establish evacuation routes and assembly areas for the Site. All personnel entering the Site will be informed of these routes and assembly areas.

Pre-Emergency Planning

Before the start of field activities, the Project Manager will ensure preparation has been made in anticipation of emergencies. Preparatory actions include the following:

Meeting with the subcontractor/and or client concerning the emergency procedures in the event a person is injured. Appropriate actions for specific scenarios will be reviewed. These scenarios will be discussed, and responses determined before the sampling event commences. A form of emergency communication (i.e.; Cell phone, Air horn, etc.) between the Project Manager and subcontractor and/or client will be agreed on before the work commences.

A training session (i.e., “safety meeting”) given by the Project Manager or their designee informing all field personnel of emergency procedures, locations of emergency equipment and their use, and proper evacuation procedures.

Ensuring field personnel are aware of the existence of the emergency response HASP and ensuring a copy of the HASP accompanies the field team(s).

Onsite Emergency Response Equipment

Emergency procedures may require specialized equipment to facilitate work rescue, contamination control and reduction or post-emergency cleanup. Emergency response equipment stocked

Table 9.1 Emergency Equipment and Emergency PPE			
Emergency Equipment	**Specific Type**	**Quantity Stocked**	**Location Stored**
First Aid Kit	General First Aid Kit	1	With H&A personnel
Emergency PPE	**Specific Type**	**Quantity Stocked**	**Location Stored**
Gloves - "Nitrile"	General Nitrile Gloves	1 Box	With H&A personnel

EVACUATION ALARM
Verbal Communication (Site Personnel are adjacent in work zone)
EVACUATION ROUTES
Will be given a map after site specific training
EVACUATION MUSTER POINT(S)/ SHELTER AREA(S)
Will be given location after site specific training
EVACUTION RESPONSE DRILLS
The Site relies on outside emergency responders and a drill is not required.

Table 9-2 – Emergency Planning

Emergency Type	Notification	Response Action	Evacuation Plan/Route
Chemical Exposure	Report event to SSO immediately	Refer to Safety Data Sheet for required actions	Remove personnel from work zone
Fire - Small	Notify SSO and contact 911	Use fire extinguisher if safe and qualified to do so	Mobilize to *Muster Point*
Fire – Large/Explosion	Notify SSO and contact 911	Evacuate immediately	Mobilize to *Muster Point*
Hazardous Material – Spill/Release	Notify SSO; SSO will contact PM to determine if additional agency notification is	If practicable don PPE and use spill kit and applicable procedures to contain the release	See Evacuation Map for route, move at least 100 ft upwind of spill location
Medical – Bloodborne Pathogen	Notify SSO	If qualified dispose in container or call client or city to notify for further instruction.	None Anticipated
Medical – First Aid	Notify SSO	If qualified perform first aid duties	None Anticipated
Medical – Trauma	If life threatening or transport is required call 911, immediately	Wait at site entrance for ambulance	Noe Anticipated
Security Threat	Notify SSO who will call 911 as warranted	Keep all valuables out of site and work zones delineated.	None Anticipated
Weather – Earthquake/Tsunami's	STOP WORK and evacuate Site upon any earthquake	Turn off equipment and evacuate as soon as is safe to do so	Mobilize to *Shelter Location*
Weather – Lightning Storm	STOP WORK	Work may resume 30 minutes after the last observed lightning.	None Anticipated
Weather – Tornadoes/Hurricanes	Monitor weather conditions STOP WORK and evacuate the site	Evacuate to shelter location or shelter in place immediately	Mobilize to *Shelter Location*
MUSTER POINT Site walk along Bruckner Avenue		*SHELTER LOCATION* Personal vehicle	
In case of site emergencies, site personnel shall be evacuated per this table and will not participate in emergency response activities. Site emergencies shall be reported to local, state, and federal governmental agencies as required.			

10. HASP ACKNOWLEDGEMENT FORM

All Haley & Aldrich employees onsite must sign this form prior to entering the site.

I hereby acknowledge receipt of, and briefing on, this HASP prior to the start of on-site work. I declare that I understand and agree to follow the provisions, processes, and procedures set forth herein at all times while working on this site.

Printed Name	Signature	Date

ATTACHMENT A
HASP AMENDMENT FORM

HASP AMENDMENT FORM

This form is to be used whenever there is an immediate change in the project scope that will require an amendment to the HASP. For project scope changes associated with "add-on" tasks, the changes must be made in the body of the HASP. Before changes can be made, a review of the potential hazards must be initiated by the Haley & Aldrich Project Manager.

This original form must remain on site with the original HASP. If additional copies of this HASP have been distributed, it is the Project Manager's responsibility to forward a signed copy of this amendment to those who have copies.

Amendment No.	
Site Name	
Work Assignment No.	
Date	
Type of Amendment	
Reason for Amendment	
Alternate Safeguard Procedures	
Required Changes in PPE	

Project Manager Name (Print)	Project Manager Signature	Date

Health & Safety Approver Name (Print)	Health & Safety Approver Signature	Date

ATTACHMENT B
TRAINING REQUIREMENTS

TRAINING REQUIREMENTS

Health and Safety Training Requirements

Personnel will not be permitted to supervise or participate in field activities until they have been trained to a level required by their job function and responsibility. Haley & Aldrich staff members, contractors, subcontractors, and consultants who have the potential to be exposed to contaminated materials or physical hazards must complete the training described in the following sections.

The Haley & Aldrich Project Manager/FSM will be responsible for maintaining and providing to the client/site manager documentation of Haley & Aldrich staff members' compliance with required training as requested. Records shall be maintained per OSHA requirements.

40-Hour Health and Safety Training

The 40-Hour Health and Safety Training course provides instruction on the nature of hazardous waste work, protective measures, proper use of personal protective equipment, recognition of signs and symptoms which might indicate exposure to hazardous substances, and decontamination procedures. It is required for all personnel working on-site, such as equipment operators, general laborers, and supervisors, who may be potentially exposed to hazardous substances, health hazards, or safety hazards consistent with 29 CFR 1910.120.

8-hour Annual Refresher Training

Personnel who complete the 40-hour health and safety training are subsequently required to attend an annual 8-hour refresher course to remain current in their training. When required, site personnel must be able to show proof of completion (i.e., certification) at an 8-hour refresher training course within the past 12 months.

8-Hour Supervisor Training

On-site managers and supervisors directly responsible for, or who supervise staff members engaged in hazardous waste operations, should have eight additional hours of Supervisor training in accordance with 29 CFR 1910.120. Supervisor Training includes, but is not limited to, accident reporting/investigation, regulatory compliance, work practice observations, auditing, and emergency response procedures.

Additional Training for Specific Projects

Haley & Aldrich personnel will ensure their personnel have received additional training on specific instrumentation, equipment, confined space entry, construction hazards, etc., as necessary to perform their duties. This specialized training will be provided to personnel before engaging in the specific work activities including:

- Client specific training or orientation
- Competent person excavations
- Confined space entry (entrant, supervisor, and attendant)
- Heavy equipment including aerial lifts and forklifts
- First aid/ CPR
- Use of fall protection
- Use of nuclear density gauges
- Asbestos awareness

ATTACHMENT C
ROLES AND RESPONSIBILITIES

SITE ROLES AND RESPONSIBILITIES

Haley & Aldrich Personnel

Field Safety Manager (FSM)

The Haley & Aldrich FSM is a full-time Haley & Aldrich staff member, trained as a safety and health professional, who is responsible for the interpretation and approval of this Safety Plan. Modifications to this Safety Plan cannot be undertaken by the PM or the SSO without the approval of the FSM.

Specific duties of the FSM include:

- Approving and amending the Safety Plan for this project
- Advising the PM and SHSOs on matter relating to health and safety
- Recommending appropriate personal protective equipment (PPE) and air monitoring instrumentation
- Maintaining regular contact with the PM and SSO to evaluate the conditions at the property and new information which might require modifications to the HASP and
- Reviewing and approving JSAs developed for the site-specific hazards.

Project Manager (PM)

The Haley & Aldrich PM is responsible for ensuring that the requirements of this HASP are implemented at that project location. Some of the PM´s specific responsibilities include:

- Assuring that all personnel to whom this HASP applies have received a copy of it;
- Providing the FSM with updated information regarding environmental conditions at the site and the scope of site work;
- Providing adequate authority and resources to the on-site SHSO to allow for the successful implementation of all necessary safety procedures;
- Supporting the decisions made by the SHSO;
- Maintaining regular communications with the SHSO and, if necessary, the FSM;
- Coordinating the activities of all subcontractors and ensuring that they are aware of the pertinent health and safety requirements for this project;
- Providing project scheduling and planning activities; and
- Providing guidance to field personnel in the development of appropriate Job Safety Analysis (JSA) relative to the site conditions and hazard assessment.

Site Health & Safety Officer (SHSO)

The SHSO is responsible for field implementation of this HASP and enforcement of safety rules and regulations. SHSO functions may include some or all of the following:

- Act as Haley & Aldrich´s liaison for health and safety issues with client, staff, subcontractors, and agencies.
- Verify that utility clearance has been performed by Haley & Aldrich subcontractors.
- Oversee day-to-day implementation of the Safety Plan by Haley & Aldrich personnel on site.
- Interact with subcontractor project personnel on health and safety matters.

- Verify use of required PPE as outlined in the safety plan.
- Inspect and maintain Haley & Aldrich safety equipment, including calibration of air monitoring instrumentation used by Haley & Aldrich.
- Perform changes to HASP and document in Appendix A of the HASP as needed and notify appropriate persons of changes.
- Investigate and report on-site accidents and incidents involving Haley & Aldrich and its subcontractors.
- Verify that site personnel are familiar with site safety requirements (e.g., the hospital route and emergency contact numbers).
- Report accidents, injuries, and near misses to the Haley & Aldrich PM and FSM as needed.

The SHSO will conduct initial site safety orientations with site personnel (including subcontractors) and conduct toolbox and safety meetings thereafter with Haley & Aldrich employees and Haley & Aldrich subcontractors at regular intervals and in accordance with Haley & Aldrich policy and contractual obligations. The SHSO will track the attendance of site personnel at Haley & Aldrich orientations, toolbox talks, and safety meetings.

Field Personnel

Haley & Aldrich personnel are responsible for following the health and safety procedures specified in this HASP and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:

- Reading the HASP in its entirety prior to the start of on-site work;
- Submitting a completed Safety Plan Acceptance Form and documentation of medical surveillance and training to the SHSO prior to the start of work;
- Attending the pre-entry briefing prior to beginning on-site work;
- Bringing forth any questions or concerns regarding the content of the Safety Plan to the PM or the SHSO prior to the start of work;
- Stopping work when it is not believed it can be performed safely;
- Reporting all accidents, injuries and illnesses, regardless of their severity, to the SHSO;
- Complying with the requirements of this safety plan and the requests of the SHSO; and
- Reviewing the established JSAs for the site-specific hazards on a daily basis and prior to each shift change, if applicable.

Visitors

Authorized visitors (e.g., Client Representatives, Regulators, Haley & Aldrich management staff, etc.) requiring entry to any work location on the site will be briefed by the Site Supervisor on the hazards present at that location. Visitors will be escorted at all times at the work location and will be responsible for compliance with their employer´s health and safety policies. In addition, this safety plan specifies the minimum acceptable qualifications, training and personal protective equipment which are required for entry to any controlled work area; visitors must comply with these requirements at all times. Unauthorized visitors, and visitors not meeting the specified qualifications, will not be permitted within established controlled work areas.

SUBCONTRACTOR PERSONNEL

Subcontractor Site Representative

Each contractor and subcontractor shall designate a Contractor Site Representative. The Contractor Site Representative will interface directly with Insert Staff Name Here, the Subcontractor Site Safety Manager, with regards to all areas that relate to this safety plan and safety performance of work conducted by the contractor and/or subcontractor workforce. Contractor Site Representatives for this site are listed in the Contact Summary Table at the beginning of the Safety Plan.

Subcontractor Site Safety Manager

Each contractor / subcontractor will provide a qualified representative who will act as their Site Safety Manager (Sub-SSM). This person will be responsible for the planning, coordination, and safe execution of subcontractor tasks, including preparation of job hazard analyses (JHA), performing daily safety planning, and coordinating directly with the Haley & Aldrich SHSO for other site safety activities. This person will play a lead role in safety planning for Subcontractor tasks, and in ensuring that all their employees and lower tier subcontractors are in adherence with applicable local, state, and/or federal regulations, and/or industry and project specific safety standards or best management practices.

General contractors / subcontractors are responsible for preparing a site-specific HASP and/or other task specific safety documents (e.g., JHAs), which are, at a minimum, in compliance with local, state, and/or federal other regulations, and/or industry and project specific safety standards or best management practices. The contractor(s)/subcontractor(s) safety documentation will be at least as stringent as the health and safety requirements of the Haley & Aldrich Project specific HASP.

Safety requirements include, but are not limited to: legal requirements, contractual obligations and industry best practices. Contractors/subcontractors will identify a site safety representative during times when contractor/subcontractor personnel are on the Site. All contractor/subcontractor personnel will undergo a field safety orientation conducted by the Haley & Aldrich SHSO and/or PM prior to commencing site work activities. All contractors / subcontractors will participate in Haley & Aldrich site safety meetings and their personnel will be subject to training and monitoring requirements identified in this Safety Plan. If the contractors / subcontractors means and methods deviate from the scope of work described in Section 1 of this Safety Plan, the alternate means and methods must be submitted, reviewed and approved by the Haley & Aldrich SHSO and/or PM prior to the commencement of the work task. Once approved by the Haley & Aldrich SHSO and/or PM, the alternate means and methods submittal will be attached to this Safety Plan as an Addendum.

ATTACHMENT D
JOB SAFETY ANALYSES

91 BRUCKNER BOULEVARD DEVELOPMENT

KEY TASK ENTER TASK NUMBER.: ENTER TASK NAME.

Subtask Category	Potential Hazards	Controls
Drilling	Slips, Trips, and Falls	• Keep work area clear
Drilling	Utility locators and underground hazards	• Utility mark out
Drilling	Noise reduction	• Wear appropriate noise reducing PPE
Drilling	Heavy equipment	• Avoid line of fire, wear PPE
Sampling	Slips, trips, and falls	• Keep work area clear
Sampling	Slips, trips, and falls	• Wear PPE
Enter subtask information.	Choose category.	• Enter control(s) for each hazard.
Enter subtask information.	Choose category.	• Enter control(s) for each hazard.
Enter subtask information.	Choose category.	• Enter control(s) for each hazard.
Enter subtask information.	Choose category.	• Enter control(s) for each hazard.
Enter subtask information.	Choose category.	• Enter control(s) for each hazard.
Enter subtask information.	Choose category.	• Enter control(s) for each hazard.
Enter subtask information.	Choose category.	• Enter control(s) for each hazard.
Enter subtask information.	Choose category.	• Enter control(s) for each hazard.

ATTACHMENT E
SITE-SPECIFIC OPERATING PROCEDURES

ATTACHMENT F
COVID-19 DOCUMENTS

Safety
in everything we do

COVID-19 Policy
Working Safely on Project Sites

HEALTH & SAFETY FACTSHEET

Incorporate the following information to protect field staff, business partners, clients, and the general public at project sites:

All Staff:

- Must follow state/county/local mandates, Controlling Employer, or client requirements, when they are stricter. Where requirements are stricter, they will be included in the Office or Project HASP.
- Must stay home if they are sick.
- Must wear a face mask when working within 6’, entering a shared indoor setting (e.g., job trailer), or anyone asks that staff wear a mask in an interaction.
- Maintain physical distancing when feasible and virtual meetings are encouraged as a best practice to reduce the risk of in-person contact and reduce our environmental footprint.
- Staff may eat together outdoors. Are still required to avoid dining with others in an indoor setting. This includes Haley & Aldrich meetings and client luncheons
- Are required to review, understand, and communicate the site’s controlling employer’s COVID-19 mitigation plan prior to mobilization. It is your duty to obtain a copy of the site COVID plan.

Staff members who have been notified of close contact, test positive, or have symptoms must:

- Immediately isolate from others and, go home if at work.
- Contact COVIDHelp@haleyaldrich.com if you experience COVID-19 symptoms, test positive or are notified that you are a close contact.
- Notify your Staff Manager and Project Manager.
- Notify COVID Help if there are site policies pertaining to COVID-19 that are more stringent
- Follow instructions per COVID Help, and refer to the “What to do if you have been exposed: guidance.
- Please use the CDC’s COVID Symptom Checker or contact your physician if you have questions about your symptoms: https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html

The risk associated with potential exposure to COVID-19 will be considered as part of the project planning and HASP development cycle.

Have Health & Safety review the HASP.

Business partners for sites managed by Haley & Aldrich (H&A Controlling Employer) will have completed the Self-Declaration Form.

Approved and appropriate Personal Protective Equipment and supplies are used as indicated by the HASP.

HALEY ALDRICH

COVID-19 PROJECT SPECIFIC INFORMATION

Fit for Duty:

- All subcontractors (if subcontracted to Haley & Aldrich), and visitors (if H&A is Controlling Employer) will complete the Subcontractor Self-Declaration form to affirm staff report fit for duty and symptom free each day.
- All employees working on a site controlled by another employer will follow site expectations for self-certification.
- Sub-contractors who do not show proof of vaccination will be expected to follow the unvaccinated staff requirements.

Things you can do to limit potential exposure (best practices for vaccinated staff/required for unvaccinated staff):

- Consider job trailers or offices as part of this risk assessment and follow all site requirements.
- Maintain a minimum distance of 6' when feasible If you can maintain greater distances, please do so.
- Avoid eating in groups
- Continue regular handwashing or hand sanitizing. Sanitize surfaces as needed.
- Avoid touching the face area (eyes, nose, mouth).

Does the client or Controlling Employer (if H&A is not controlling employer) have specific requirements related to COVID-19?

If yes, please attach the requirements. Yes No

Do we have the necessary supplies on hand (If needed)? Yes No

(Supplies include masks, disinfectant, hand washing stations or sanitizer, and PPE.)

The following **must** be onsite(☑ to acknowledge):

- ☐ Has the Tailgate Meeting Form been provided?
- ☐ Has the What To Do if You Have Been Exposed policy been provided?
- ☐ Has the mask policy been provided?
- ☐ Has the Field Office/Trailer been reviewed to ensure it is safe?
- ☐ Subcontractor Self-Declaration form

APPENDIX G

NYSDOH Generic Community Air Monitoring Plan

Appendix 1A
New York State Department of Health
Generic Community Air Monitoring Plan

Overview

A Community Air Monitoring Plan (CAMP) requires real-time monitoring for volatile organic compounds (VOCs) and particulates (i.e., dust) at the downwind perimeter of each designated work area when certain activities are in progress at contaminated sites. The CAMP is not intended for use in establishing action levels for worker respiratory protection. Rather, its intent is to provide a measure of protection for the downwind community (i.e., off-site receptors including residences and businesses and on-site workers not directly involved with the subject work activities) from potential airborne contaminant releases as a direct result of investigative and remedial work activities. The action levels specified herein require increased monitoring, corrective actions to abate emissions, and/or work shutdown. Additionally, the CAMP helps to confirm that work activities did not spread contamination off-site through the air.

The generic CAMP presented below will be sufficient to cover many, if not most, sites. Specific requirements should be reviewed for each situation in consultation with NYSDOH to ensure proper applicability. In some cases, a separate site-specific CAMP or supplement may be required. Depending upon the nature of contamination, chemical- specific monitoring with appropriately-sensitive methods may be required. Depending upon the proximity of potentially exposed individuals, more stringent monitoring or response levels than those presented below may be required. Special requirements will be necessary for work within 20 feet of potentially exposed individuals or structures and for indoor work with co-located residences or facilities. These requirements should be determined in consultation with NYSDOH.

Reliance on the CAMP should not preclude simple, common-sense measures to keep VOCs, dust, and odors at a minimum around the work areas.

Community Air Monitoring Plan

Depending upon the nature of known or potential contaminants at each site, real-time air monitoring for VOCs and/or particulate levels at the perimeter of the exclusion zone or work area will be necessary. Most sites will involve VOC and particulate monitoring; sites known to be contaminated with heavy metals alone may only require particulate monitoring. If radiological contamination is a concern, additional monitoring requirements may be necessary per consultation with appropriate DEC/NYSDOH staff.

Continuous monitoring will be required for all ground intrusive activities and during the demolition of contaminated or potentially contaminated structures. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling, test pitting or trenching, and the installation of soil borings or monitoring wells.

Periodic monitoring for VOCs will be required during non-intrusive activities such as the collection of soil and sediment samples or the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of taking a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well baling/purging, and taking a reading prior to leaving a sample location. In some instances, depending upon the proximity of potentially exposed individuals, continuous monitoring may be required during sampling activities. Examples of such situations include groundwater sampling at wells on the curb of a busy urban street, in the midst of a public park, or adjacent to a school or residence.

VOC Monitoring, Response Levels, and Actions

Volatile organic compounds (VOCs) must be monitored at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions, particularly if wind direction changes. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present. The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

1. If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

2. If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

3. If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown.

4. All 15-minute readings must be recorded and be available for State (DEC and NYSDOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

Particulate Monitoring, Response Levels, and Actions

Particulate concentrations should be monitored continuously at the upwind and downwind perimeters of the exclusion zone at temporary particulate monitoring stations. The particulate monitoring should be performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating over a period of 15 minutes (or less) for comparison to the airborne particulate action level. The equipment must be equipped with an audible alarm to indicate exceedance of the action level. In addition, fugitive dust migration should be visually assessed during all work activities.

1. If the downwind PM-10 particulate level is 100 micrograms per cubic meter (mcg/m^3) greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 mcg/m^3 above the upwind level and provided that no visible dust is migrating from the work area.

2. If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 mcg/m^3 above the upwind level, work must be stopped and a re-evaluation of activities initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 mcg/m^3 of the upwind level and in preventing visible dust migration.

3. All readings must be recorded and be available for State (DEC and NYSDOH) and County Health personnel to review.

December 2009

Appendix 1B
Fugitive Dust and Particulate Monitoring

A program for suppressing fugitive dust and particulate matter monitoring at hazardous waste sites is a responsibility on the remedial party performing the work. These procedures must be incorporated into appropriate intrusive work plans. The following fugitive dust suppression and particulate monitoring program should be employed at sites during construction and other intrusive activities which warrant its use:

1. Reasonable fugitive dust suppression techniques must be employed during all site activities which may generate fugitive dust.

2. Particulate monitoring must be employed during the handling of waste or contaminated soil or when activities on site may generate fugitive dust from exposed waste or contaminated soil. Remedial activities may also include the excavation, grading, or placement of clean fill. These control measures should not be considered necessary for these activities.

3. Particulate monitoring must be performed using real-time particulate monitors and shall monitor particulate matter less than ten microns (PM10) with the following minimum performance standards:

(a) Objects to be measured: Dust, mists or aerosols;
(b) Measurement Ranges: 0.001 to 400 mg/m3 (1 to 400,000 :ug/m3);
(c) Precision (2-sigma) at constant temperature: +/- 10 :g/m3 for one second averaging; and +/- 1.5 g/m3 for sixty second averaging;
(d) Accuracy: +/- 5% of reading +/- precision (Referred to gravimetric calibration with SAE fine test dust (mmd= 2 to 3 :m, g= 2.5, as aerosolized);
(e) Resolution: 0.1% of reading or 1g/m3, whichever is larger;
(f) Particle Size Range of Maximum Response: 0.1-10;
(g) Total Number of Data Points in Memory: 10,000;
(h) Logged Data: Each data point with average concentration, time/date and data point number
(i) Run Summary: overall average, maximum concentrations, time/date of maximum, total number of logged points, start time/date, total elapsed time (run duration), STEL concentration and time/date occurrence, averaging (logging) period, calibration factor, and tag number;
(j) Alarm Averaging Time (user selectable): real-time (1-60 seconds) or STEL (15 minutes), alarms required;
(k) Operating Time: 48 hours (fully charged NiCd battery); continuously with charger;
(l) Operating Temperature: -10 to 50^{o} C (14 to 122^{o} F);
(m) Particulate levels will be monitored upwind and immediately downwind at the working site and integrated over a period not to exceed 15 minutes.

4. In order to ensure the validity of the fugitive dust measurements performed, there must be appropriate Quality Assurance/Quality Control (QA/QC). It is the responsibility of the remedial party to adequately supplement QA/QC Plans to include the following critical features: periodic instrument calibration, operator training, daily instrument performance (span) checks, and a record keeping plan.

5. The action level will be established at 150 ug/m3 (15 minutes average). While conservative,

this short-term interval will provide a real-time assessment of on-site air quality to assure both health and safety. If particulate levels are detected in excess of 150 ug/m3, the upwind background level must be confirmed immediately. If the working site particulate measurement is greater than 100 ug/m3 above the background level, additional dust suppression techniques must be implemented to reduce the generation of fugitive dust and corrective action taken to protect site personnel and reduce the potential for contaminant migration. Corrective measures may include increasing the level of personal protection for on-site personnel and implementing additional dust suppression techniques (see paragraph 7). Should the action level of 150 ug/m3 continue to be exceeded work must stop and DER must be notified as provided in the site design or remedial work plan. The notification shall include a description of the control measures implemented to prevent further exceedances.

6. It must be recognized that the generation of dust from waste or contaminated soil that migrates off-site, has the potential for transporting contaminants off-site. There may be situations when dust is being generated and leaving the site and the monitoring equipment does not measure PM10 at or above the action level. Since this situation has the potential to allow for the migration of contaminants off-site, it is unacceptable. While it is not practical to quantify total suspended particulates on a real-time basis, it is appropriate to rely on visual observation. If dust is observed leaving the working site, additional dust suppression techniques must be employed. Activities that have a high dusting potential--such as solidification and treatment involving materials like kiln dust and lime--will require the need for special measures to be considered.

7. The following techniques have been shown to be effective for the controlling of the generation and migration of dust during construction activities:

(a) Applying water on haul roads;
(b) Wetting equipment and excavation faces;
(c) Spraying water on buckets during excavation and dumping;
(d) Hauling materials in properly tarped or watertight containers;
(e) Restricting vehicle speeds to 10 mph;
(f) Covering excavated areas and material after excavation activity ceases; and
(g) Reducing the excavation size and/or number of excavations.

Experience has shown that the chance of exceeding the 150ug/m3 action level is remote when the above-mentioned techniques are used. When techniques involving water application are used, care must be taken not to use excess water, which can result in unacceptably wet conditions. Using atomizing sprays will prevent overly wet conditions, conserve water, and provide an effective means of suppressing the fugitive dust.

8. The evaluation of weather conditions is necessary for proper fugitive dust control. When extreme wind conditions make dust control ineffective, as a last resort remedial actions may need to be suspended. There may be situations that require fugitive dust suppression and particulate monitoring requirements with action levels more stringent than those provided above. Under some circumstances, the contaminant concentration and/or toxicity may require additional monitoring to protect site personnel and the public. Additional integrated sampling and chemical analysis of the dust may also be in order. This must be evaluated when a health and safety plan is developed and when appropriate suppression and monitoring requirements are established for protection of health and the environment.

APPENDIX B
Soil Boring Logs

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO.	SB-01
Page	1 of 1

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/14/2023
DRILLER	Tim & Mike	DATE FINISHED	2/14/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-01_0-0.5'		Dark brown fine SAND, trace fine gravel, trace coarse gravel, trace asphalt, trace concrete, no odor, dry (FILL)
1		0.0			
2	24/60	0.0			
3		0.0			
4		0.0			
5		0.0			
6		0.0	SB-01_6-8'		
7	30/60	0.0			Dark brown fine SAND, trace fine gravel, trace coarse gravel, trace asphalt, trace concrete, no odor, dry (FILL)
8		0.0			Light brown to brown fine silty SAND, trace fine gravel, trace coarse gravel, no odor, dry
9		0.0			
10		0.0			
11		0.0			
12	60/60	0.0	SB-01_12-14'		
13		0.0			
14		0.0			Light brown to gray clayey SAND, no odor, dry
15		0.0			
16		0.0			
17		0.0			
18		0.0			
19		0.0			
20		0.0			
21		0.0			
22	42/60	0.0			Gray to light brown fine silty SAND, trace orange medium sand, trace fine gravel, trace coarse gravel, no odor, moist
23		0.0			
24		0.0			
25		0.0			
26		0.0			Gray to light brown silty SAND, trace fine gravel, no odor, moist
27	60/60	0.0			Gray to light brown silty SAND, trace fine to coarse gravel, no odor, moist
28		0.0			Gray to light brown silty SAND, trace fine to coarse gravel, moist
29		0.0			
30					END OF BORING AT 30 FT INSTALLED PERMANENT WELL

Water Level Data

Date	Time	Elapsed Time (hr.)	Bottom of Casing	Bottom of Hole	Water
		0.0			
		0.0			
		0.0			

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	30
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. **SB-02**

Page 1 of 1

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/15/2023
DRILLER	Tim & Mike	DATE FINISHED	2/15/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-02_0-0.5'		Brown fine SAND, some fine gravel, trace coarse gravel, trace brick, trace concrete, no odor, dry (FILL)
1		0.0			
2	20/60	0.0			
3		0.0			
4		0.0			
5		0.0			
6		0.0	SB-02_6-8'		
7	24/60	0.0			
8		0.0			Brown fine SAND, some fine gravel, trace coarse gravel, no odor, dry
9		0.0			
10		0.0			
11		0.0			
12	30/60	0.0	SB-02_12-14'		Brown fine SAND, trace red-brown sand, some fine gravel, trace coarse gravel, no odor, dry
13		0.0			Light brown to gray fine SAND, trace fine gravel, trace coarse gravel, no odor, moist
14		0.0			
15		0.0			Light brown to gray fine SAND, trace fine gravel, trace coarse gravel, no odor, moist
16		0.0			
17		0.0			
18		0.0			
19		0.0			
20					**END OF BORING AT 20 FT INSTALLED PERMANENT WELL**
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. **SB-03**

Page 1 of 1

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/15/2023
DRILLER	Tim & Mike	DATE FINISHED	2/15/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-03_0-0.5'		Brown coarse SAND, brick, gravel, trace red-brown sand, no odor, dry
1		0.0			
2	24/60	0.0			
3		0.0			
4		0.0			
5		0.0			
6		0.0	SB-03_6-8'		Brown coarse SAND, brick, gravel, glass, trace red-brown sand, no odor, dry
7	24/60	0.0			
8		0.0			
9		0.0			
10		0.0			Tan-brown silty SAND, trace gravel, no odor, dry
11		0.0			
12	30/60	0.0	SB-03_12-14'		
13		0.0			
14		0.0			
15		0.0			Tan-brown silty SAND, trace gravel, no odor, dry
16		0.0			
17	30/60	0.0			
18		0.0			
19		0.0			
20		0.0			Tan-brown silty SAND, weathered bedrock, no odor, dry
21	16/32	0.0			
22		0.0			
23					**END OF BORING AT 23 FT INSTALLED PERMANENT WELL**
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

HALEY ALDRICH

GEOPROBE BORING REPORT

BORING NO. **SB-04**

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/13/2023
DRILLER	Tim & Mike	DATE FINISHED	2/13/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-04_0-0.5'		Brown to dark brown fine SAND, trace fine gravel, trace coarse gravel, trace brick, trace asphalt, trace glass, trace concrete, no odor, dry (FILL)
1		0.0			
2	30/60	0.0			
3		0.0			
4		0.0			
5		0.0			
6			SB-04_6-8'		
7	60/60	0.0			Dark brown fine SAND, trace fine gravel, trace brick, trace asphalt, trace concrete, no odor, dry (FILL)
8		0.0			Brown to light gray fine silty SAND, trace fine gravel, trace coarse gravel, no odor, dry
9		0.0			
10		0.0			
11					Brown to light gray fine silty SAND, trace fine gravel, trace coarse gravel, no odor, dry
12		0.0			
	48/60		SB-04_12-14'		Weathered bedrock, black, shiny, no odor, dry
13		0.0			
14		0.0			
		0.0			
15					**END OF BORING AT 15 FT**
16–30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

HALEY ALDRICH

GEOPROBE BORING REPORT

BORING NO. **SB-05**

Page 1 of 1

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/13/2023
DRILLER	Tim & Mike	DATE FINISHED	2/13/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT
- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-05_0-0.5'		Brown silty medium SAND, trace fine and coarse gravel, no odor, dry (FILL)
1		0.0			
2	42/60	0.0	SB-05_2-4'		
3		0.0			Concrete and brick, no odor, dry (FILL)
4		0.0	SB-05_4-6'		Dark brown silty medium SAND, no odor, dry
5		0.0			
6		0.0	SB-05_6-8'		Dark brown silty medium SAND, no odor, dry
7	54/60	0.0			
8		0.0			Orange-brown medium SAND, no odor, dry
9		0.0			
10		0.0			Dark brown silty medium SAND, no odor, dry
11		0.0			
12	60/60	0.0	SB-05_12-14'		Orange and white quartz-like coarse SAND, no odor, dry
13		0.0			Dark brown silty medium SAND, no odor, dry
14		0.0			
15					**END OF BORING AT 15 FT**
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID
- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	4

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

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GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. **SB-06**

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PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/15/2023
DRILLER	Tim & Mike	DATE FINISHED	2/15/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT
- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-06_0-0.5'		Brown to dark brown fine SAND, trace fine gravel, trace coarse gravel, trace broken concrete, trace asphalt, no odor, dry (FILL)
1		0.0			
2	30/60	0.0			
3		0.0			
4		0.0			
5		0.0			Brown to dark brown fine SAND, trace fine gravel, trace coarse gravel, trace broken concrete, trace asphalt, no odor, dry (FILL)
6		0.0	SB-06_6-8'		Brown fine SAND, trace medium sand, trace fine gravel, trace coarse gravel, trace broken concrete, no odor, dry
7	54/60	0.0			
8		0.0			
9		0.0			
10		0.0			
11		0.0			
12	24/60	0.0	SB-06_12-14'		
13		0.0			Brown fine SAND, trace medium sand, trace fine gravel, trace coarse gravel, no odor, dry
14		0.0			
15		0.0			Brown fine SAND, trace medium sand, trace fine gravel, no odor, moist
16		0.0			
17	24/60	0.0			
18		0.0			
19		0.0			
20					**END OF BORING AT 20 FT INSTALLED PERMANENT WELL**
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID
- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary
- Overburden (Linear ft.) 15
- Rock Cored (Linear ft.) -
- Number of Samples 3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

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GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO.
SB-07
Page 1 of 1

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/13/2023
DRILLER	Tim & Mike	DATE FINISHED	2/13/2023

Elevation	ft.	Datum		Boring Location	See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

☐ Truck	☐ Tripod	☐ Cat-Head
☐ ATV	☑ Geoprobe	☐ Winch
☑ Track	☐ Air Track	☐ Roller Bit
☐ Skid	☐ Other	☐ Cutting Head

Hammer Type	Drilling Mud	Casing Advance Type Method Depth
☐ Safety	☐ Bentonite	Direct Push
☐ Doughnut	☐ Polymer	
☐ Automatic	☑ None	

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-07_0-0.5'		Dark brown silty medium SAND, coarse, gravel, no odor, dry (FILL)
1		0.0			
2	54/60	0.0			
3		0.0			
4		0.0			
5		0.0			Dark brown silty medium SAND, coarse, gravel, no odor, dry (FILL)
6		0.0	SB-07_6-8'		
7	54/60	0.0			Orange-white quartz-like coarse SAND, no odor, dry
8		0.0			Orange-brown medium SAND, no odor, dry
9		0.0			Brown silty medium SAND, trace coarse gravel, no odor, slightly moist
10		0.0			
11		0.0			
12	54/60	0.0	SB-07_12-14'		
13		0.0			
14		0.0			
15					**END OF BORING AT 15 FT**
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

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GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. SB-08

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PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	**FIELD REP.**	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	**DATE STARTED**	2/14/2023
DRILLER	Tim & Mike	**DATE FINISHED**	2/14/2023

Elevation ft.	Datum			Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-07_0-0.5'		Light brown to brown fine SAND, some fine gravel, trace coarse gravel, trace concrete, trace asphalt, no odor, dry (FILL)
1		0.0			
2	30/60	0.0			
3		0.0			
4		0.0			
5		0.0			Light brown fine SAND, trace fine gravel, trace coarse gravel, trace broken concrete, no odor, dry
6		0.0	SB-07_6-8'		
7	54/60	0.0			
8		0.0			
9		0.0			
10		0.0			Light brown fine SAND, trace medium orange sand, trace fine gravel, trace coarse gravel, no odor, dry
11		0.0			
12	0/60	0.0	SB-07_12-14'		
13		0.0			
14		0.0			
15					Light brown fine SAND, trace medium orange sand, trace fine gravel, no odor, dry
16					
17					
18					
19					
20					Light brown to gray fine silty SAND, trace fine gravel, trace coarse gravel, no odor, moist
21					
22	60/60				
23					
24					
25					**END OF BORING AT 25 FT INSTALLED PERMANENT WELL**
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	25
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

***NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.**

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. **SB-09**

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/15/2023
DRILLER	Tim & Mike	DATE FINISHED	2/15/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT
- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-09_0-0.5'		Brown fine SAND, some fine gravel, trace coarse gravel, trace glass, trace asphalt, trace concrete, no odor, dry (FILL)
1			SB-09_0-0.5'MS		
		0.0	SB-09_0-0.5'MSD		
2	36/60	0.0			
3		0.0			
4		0.0			
5		0.0			Brown fine SAND, trace fine gravel, trace coarse gravel, white medium sand at ~9 ft bgs, no odor, dry
6		0.0			
			SB-09_6-8'		
7	60/60	0.0			
8		0.0			
9		0.0			
10		0.0			
11		0.0			Brown fine SAND, trace fine gravel, trace coarse gravel, weathered bedrock at ~14', no odor, dry
12	42/60	0.0	SB-09_12-14'		
13		0.0			
14		0.0			
15					**END OF BORING AT 15 FT**
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID
- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO.	SB-10
Page	1 of 1

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/13/2023
DRILLER	Tim & Mike	DATE FINISHED	2/13/2023

Elevation	ft.	Datum		Boring Location	See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

☐ Truck	☐ Tripod	☐ Cat-Head
☐ ATV	☑ Geoprobe	☐ Winch
☑ Track	☐ Air Track	☐ Roller Bit
☐ Skid	☐ Other	☐ Cutting Head

Hammer Type	Drilling Mud	Casing Advance
☐ Safety	☐ Bentonite	Type Method Depth
☐ Doughnut	☐ Polymer	Direct Push
☐ Automatic	☑ None	

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-10_0-0.5'		Brown silty medium SAND, coarse gravel, quartz, no odor, dry (FILL)
1		0.0			
2	50/60	0.0			
3		0.0			
4		0.0			
5		0.0			Brown silty medium SAND, trace fine gravel, trace orange sand, no odor, dry
6		0.0			
			SB-10_6-8'		
7	60/60	0.0			
8		0.0			
9		0.0			
10		0.0			Medium brown silty SAND, no odor, dry
11		0.0			
12	60/60	0.0	SB-10_12-14'		
13		0.0			
14		0.0			
15					**END OF BORING AT 15 FT**
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. **SB-11**

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/15/2023
DRILLER	Tim & Mike	DATE FINISHED	2/15/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-11_0-0.5'		Dark brown fine SAND, some fine gravel, trace coarse gravel, trace concrete, trace asphalt, trace glass, trace brick, no odor, dry (FILL)
1		0.0			
2	24/60	0.0			
3		0.0			
4		0.0			
5		0.0			Dark brown fine SAND, some fine gravel, trace coarse gravel, trace concrete, trace asphalt, trace glass, trace brick, no odor, dry (FILL)
6		0.0	SB-11_6-8'		
7	30/60	0.0			
8		0.0			Brown fine SAND, some coarse gravel, trace fine gravel, no odor, dry
9		0.0			
10		0.0			Brown fine SAND, trace coarse gravel, trace fine gravel, no odor, dry
11		0.0			
12	60/60	0.0	SB-11_12-14'		
13		0.0			
14		0.0			
15		0.0			Brown fine SAND, trace coarse gravel, trace fine gravel, no odor, dry
16		0.0			
17	60/60	0.0			
18		0.0			
19		0.0			
20		0.0			Brown fine SAND, trace coarse gravel, trace fine gravel, no odor, moist
21	32/32	0.0			
22		0.0			
23					**END OF BORING AT 23 FT INSTALLED PERMANENT WELL**
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

HALEY ALDRICH

GEOPROBE BORING REPORT

BORING NO. **SB-12**

Page 1 of 1

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/13/2023
DRILLER	Tim & Mike	DATE FINISHED	2/13/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance: Type Method Depth — Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-12_0-0.5'		Brown to dark brown fine SAND, trace medium sand, trace fine gravel, trace coarse gravel, trace asphalt, trace concrete, no odor, dry (FILL)
1		0.0			
2	30/60	0.0			
3		0.0			
4		0.0			
5		0.0			Brown to dark brown fine SAND, trace medium sand, trace coarse sand, trace coarse gravel, trace fine gravel, trace glass, trace asphalt, trace concrete, trace brick, no odor, dry (FILL)
6		0.0	SB-12_6-8'		
7	36/60	0.0			
8		0.0			Light brown fine SAND, trace coarse sand, trace fine gravel, no odor, dry
9		0.0			
10		0.0			
11		0.0			
12	42/60	0.0	SB-12_12-14'		
13		0.0			Brown to light gray fine silty SAND, trace fine gravel, trace coarse gravel, no odor, moist
14		0.0			
15					**END OF BORING AT 15 FT**
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. **SB-13**

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/13/2023
DRILLER	Tim & Mike	DATE FINISHED	2/13/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-13_0-0.5'		Concrete fragments, no odor, dry
1		0.0			Brown medium to fine SAND, brick and gravel, no odor, dry (FILL)
2	18/60	0.0			
3		0.0			
4		0.0			
5		0.0			Brown medium to fine SAND, trace gravel, trace brick, no odor, dry (FILL)
6		0.0	SB-13_6-8'		
7	30/60	0.0			
8		0.0			Tan-brown silty SAND, coarse gravel, some white quartz-like sand, no odor, slightly moist
9		0.0			
10		0.0			
11		0.0			
12	60/60	0.0	SB-13_12-14'		
13		0.0			White coarse SAND, no odor, slightly moist
14		0.0			Brown silty medium SAND, no odor, slightly moist
15					**END OF BORING AT 15 FT**
16–30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. **SB-14**

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/13/2023
DRILLER	Tim & Mike	DATE FINISHED	2/13/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0		0.0	SB-14_0-0.5'		Brown to dark brown fine SAND, trace fine gravel, trace broken concrete, trace asphalt, trace brick, no odor, dry (FILL)
1			DUP-1		
		0.0	02132023		
2	36/60	0.0			
3		0.0			
4		0.0			
5		0.0			
6		0.0			
			SB-14_6-8'		Brown fine SAND, trace gravel, trace coarse gravel, no odor, dry
7	48/60	0.0	DUP-2		
			02132023		
8		0.0			
					Brown to light gray fine silty SAND, some trace medium sand, trace fine gravel, no odor, slightly moist
9		0.0			
10		0.0			Brown to light gray fine silty SAND, trace fine gravel, no odor, slightly moist
11		0.0			
12	60/60	0.0	SB-14_12-14'		
13			DUP-3		
		0.0	02132023		
14		0.0			
15					**END OF BORING AT 15 FT**
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	15
Rock Cored (Linear ft.)	-
Number of Samples	3

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

GEOPROBE BORING REPORT

BORING NO. **SB-15**

Page 1 of 1

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/27/2023
DRILLER	Tim & Mike	DATE FINISHED	2/27/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance: Type Method Depth — Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0					Concrete fragments, no odor, dry
1					Dark brown silty SAND, trace fine black rock fragments, trace gravel, no odor, dry (FILL)
		0.0			
2	30/36				
			SB-15_2-4'		
3		0.0			
4					
		0.0			White quartz-like rock fragments, no odor, dry
5	24/36				Brown silty SAND, no odor, dry
		0.0			
6					END OF BORING AT 6 FT
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

- Overburden (Linear ft.) 6
- Rock Cored (Linear ft.) -
- Number of Samples 1

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

Form #3000

GEOPROBE BORING REPORT

BORING NO. SB-16

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	**FIELD REP.**	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	**DATE STARTED**	2/27/2023
DRILLER	Tim & Mike	**DATE FINISHED**	2/27/2023

Elevation ft. **Datum** **Boring Location** See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0					Dark brown silty medium SAND, coarse gravel, no odor, dry (FILL)
1		0.0			
2	24/36		SB-16_2-4'	2-4'	Brown silty medium SAND, trace brick, trace coarse gravel, no odor, dry (FILL)
3		0.0			
4		0.0			White quartz-like rock, no odor, dry
5	28/36				**END OF BORING AT 5 FT**
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- **O** Open End Rod
- **T** Thin Wall Tube
- **U** Undisturbed Sample
- **S** Split Spoon Sample
- **G** Geoprobe

Summary

Overburden (Linear ft.)	5
Rock Cored (Linear ft.)	-
Number of Samples	1

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

GEOPROBE BORING REPORT

HALEY ALDRICH

BORING NO. **SB-17**

PROJECT	91 Bruckner Blvd.		204520
LOCATION	91 Bruckner Blvd., Bronx, NY	PROJECT MGR.	M. Conlon
CLIENT	91 Bruckner Blvd. LLC	FIELD REP.	P. DiNardo/N. Mazione
CONTRACTOR	Lakewood Environmental Services Corp.	DATE STARTED	2/27/2023
DRILLER	Tim & Mike	DATE FINISHED	2/27/2023

Elevation ft. | Datum | Boring Location: See Plan

Item	Casing	Sampler	Core Barrel
Type	Steel	Macrocore	
Inside Diameter (in.)	2-in.		
Hammer Weight (lb.)	Macrocore		
Hammer Fall (in.)	NA		

Rig Make & Model: 6610DT

- ☐ Truck ☐ Tripod ☐ Cat-Head
- ☐ ATV ☑ Geoprobe ☐ Winch
- ☑ Track ☐ Air Track ☐ Roller Bit
- ☐ Skid ☐ Other ☐ Cutting Head

Hammer Type: ☐ Safety ☐ Doughnut ☐ Automatic

Drilling Mud: ☐ Bentonite ☐ Polymer ☑ None

Casing Advance — Type Method Depth: Direct Push

Drilling Notes:

Depth (ft.)	Recovery (ft)	PID (ppm)	Sample ID	Sample Depth (ft)	Visual-Manual Identification & Description (density/consistency, color, GROUP NAME & SYMBOL, maximum particle size*, structure, odor, moisture, optional descriptions, geologic interpretation)
0					Brown silty medium SAND, no odor, dry (FILL)
1					Coarse gray gravel, no odor, dry (FILL)
2	30/36	0.0			Dark brown silty SAND, some fine gravel, some glass shards, no odor, dry (FILL)
3		0.0	SB-17_3-5'	3-5'	
4		0.0			Tan-brown silty medium SAND, trace gravel, no odor, dry
5	18/36				
6					END OF BORING AT 6 FT

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth in feet to: Bottom of Casing	Bottom of Hole	Water

Sample ID

- O Open End Rod
- T Thin Wall Tube
- U Undisturbed Sample
- S Split Spoon Sample
- G Geoprobe

Summary

Overburden (Linear ft.)	6
Rock Cored (Linear ft.)	-
Number of Samples	1

BORING NO.

*NOTE: Maximum Particle Size is determined by direct observation within the limitations of sampler size.

NOTE: Soil descriptions based on a modified Burmister method of visual-manual identification as practiced by Haley & Aldrich, Inc.

APPENDIX C
Well Construction Diagrams

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No.	Boring No.
MW-01	SB-01

PROJECT	Former Fiedler Waterproofing & Masonry Site	**H&A FILE NO.**	0204520
LOCATION	91 Bruckner Boulevard, New York, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd LLC	**FIELD REP.**	P. DiNardo
CONTRACTOR	Lakewood Environmental Services	**DATE INSTALLED**	2/14/2023
DRILLER	Tim Kelly	**WATER LEVEL**	15.99 ft

TOC El. 25.25 ft
El. Datum NAVD 1988
Location See Plan

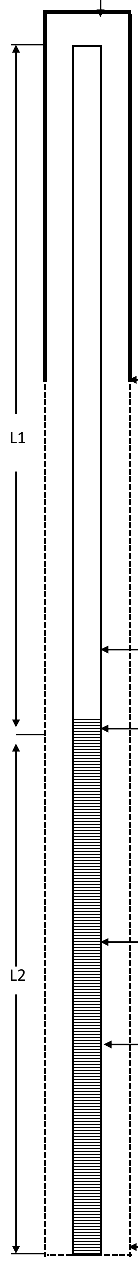
☐ **Guard Pipe**
☑ **Roadway Box**

CONDITIONS

DTW: 15.99 ft

Weathered Bedrock

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



Type of protective cover/lock: Bolt down lid

Height of top of riser pipe below ground surface 2.4 **in**

Depth of bottom of guard pipe/roadway box 1.0 **ft**

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	NA	NA
Soil Cuttings	2.0	7.6
Bentonite Seal	9.6	2.0
Filter Sand	11.6	2.0

Type of riser pipe: Solid PVC

Inside diameter of riser pipe 2.0 **in**

Depth to top of well screen 13.6 **ft**

Type of screen Machine Slotted PVC

Screen gauge or size of openings 0.010 **in**

Diameter of screen 2.0 **in**

Type of backfill around screen #0 Filter Sand

Depth of bottom of borehole/well screen 23.6 **ft**

(Not to Scale)

13.6 ft + 10 ft = 23.6 ft
Riser Pay Length (L1) + Length of Screen (L2) = Pay length

COMMENTS:

Form 2007

OBSERVATION WELL INSTALLATION REPORT

Well No. MW-02

PROJECT	Former Fiedler Waterproofing & Masonry Site	**H&A FILE NO.**	0204520
LOCATION	91 Bruckner Boulevard, New York, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd LLC	**FIELD REP.**	P. DiNardo
CONTRACTOR	Lakewood Environmental Services	**DATE INSTALLED**	2/20/2023
DRILLER	Tim Kelly	**WATER LEVEL**	13.78 ft

TOC El. **27.89** ft **Location** See Plan ☐ **Guard Pipe**

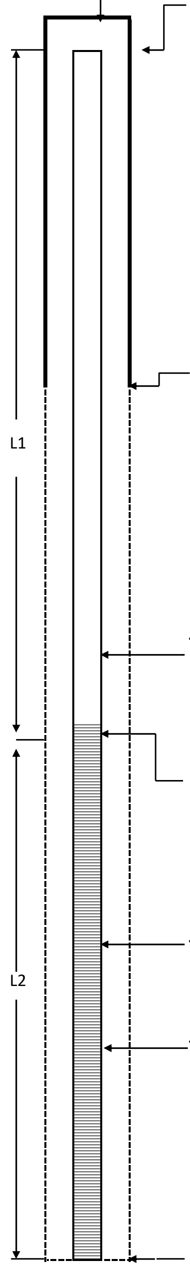
El. Datum **NAVD 1988** ☑ **Roadway Box**

CONDITIONS

DTW: 13.78 ft

Weathered Bedrock

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



Type of protective cover/lock: Bolt down lid

Height of top of riser pipe below ground surface 3.9 **in**

Depth of bottom of guard pipe/roadway box 1.0 **ft**

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	NA	NA
Soil Cuttings	2.0	4.5
Bentonite Seal	6.5	2.0
Filter Sand	8.5	2.0

Type of riser pipe: Solid PVC

Inside diameter of riser pipe 2.0 **in**

Depth to top of well screen 10.51 **ft**

Type of screen Machine Slotted PVC

Screen gauge or size of openings 0.010 **in**

Diameter of screen 2.0 **in**

Type of backfill around screen #0 Filter Sand

Depth of bottom of borehole/well screen 20.50 **ft**

(Not to Scale)

Riser Pay Length (L1)		Length of Screen (L2)		Pay length
10.5 ft	+	10 ft	=	20.5 ft

COMMENTS:

Form 2007

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No.	Boring No.
MW-03	SB-03

PROJECT	Former Fiedler Waterproofing & Masonry Site	**H&A FILE NO.**	0204520
LOCATION	91 Bruckner Boulevard, New York, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd LLC	**FIELD REP.**	P. DiNardo
CONTRACTOR	Lakewood Environmental Services	**DATE INSTALLED**	2/17/2023
DRILLER	Tim Kelly	**WATER LEVEL**	16.07 ft

TOC El.	**25.66** ft	**Location**	See Plan	☐ **Guard Pipe**
El. Datum	**NAVD 1988**			☑ **Roadway Box**

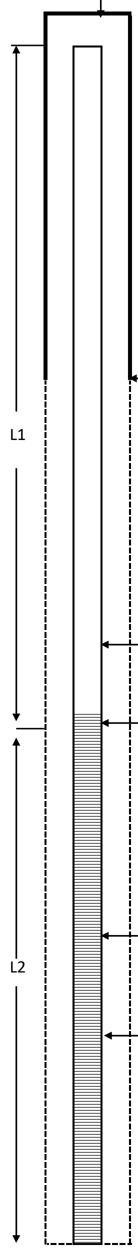
CONDITIONS

DTW: 16.07 ft

Weathered Bedrock

(Bottom of Exploration)

(Numbers refer to depth from ground surface in feet)



Type of protective cover/lock: Bolt down lid

Height of top of riser pipe below ground surface 3.2 **in**

Depth of bottom of guard pipe/roadway box 1.0 **ft**

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	NA	NA
Soil Cuttings	2.0	7.4
Bentonite Seal	9.4	2.0
Filter Sand	11.4	2.0

Type of riser pipe: Solid PVC

Inside diameter of riser pipe 2.0 **in**

Depth to top of well screen 13.4 **ft**

Type of screen Machine Slotted PVC

Screen gauge or size of openings 0.010 **in**

Diameter of screen 2.0 **in**

Type of backfill around screen #0 Filter Sand

Depth of bottom of borehole/well screen 23.4 **ft**

(Not to Scale)

Riser Pay Length (L1)		Length of Screen (L2)		Pay length
13.4 ft	+	10 ft	=	23.4 ft

COMMENTS:

Form 2007

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No.	Boring No.
MW-06	SB-06

PROJECT	Former Fiedler Waterproofing & Masonry Site	**H&A FILE NO.**	0204520
LOCATION	91 Bruckner Boulevard, New York, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd LLC	**FIELD REP.**	P. DiNardo
CONTRACTOR	Lakewood Environmental Services	**DATE INSTALLED**	2/17/2023
DRILLER	Tim Kelly	**WATER LEVEL**	13.98 ft

TOC El. 27.86 ft **Location** See Plan ☐ **Guard Pipe**

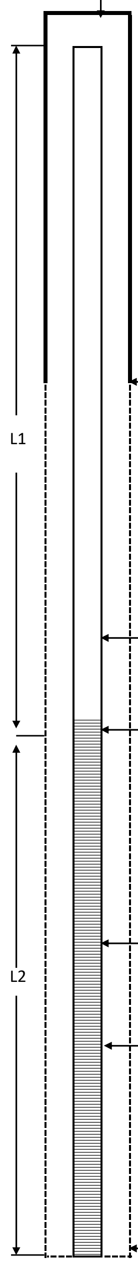
El. Datum NAVD 1988 ☑ **Roadway Box**

CONDITIONS

DTW: 13.98 ft

Weathered Bedrock

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



Type of protective cover/lock: Bolt down lid

Height of top of riser pipe below ground surface 4.2 **in**

Depth of bottom of guard pipe/roadway box 1.0 **ft**

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	NA	NA
Soil Cuttings	2.0	3.8
Bentonite Seal	5.8	2.0
Filter Sand	7.8	2.0

Type of riser pipe: Solid PVC

Inside diameter of riser pipe 2.0 **in**

Depth to top of well screen 9.8 **ft**

Type of screen Machine Slotted PVC

Screen gauge or size of openings 0.010 **in**

Diameter of screen 2.0 **in**

Type of backfill around screen #0 Filter Sand

Depth of bottom of borehole/well screen 19.8 **ft**

(Not to Scale)

9.8 ft + 10 ft = 19.8 ft

Riser Pay Length (L1) | Length of Screen (L2) | Pay length

COMMENTS:

Form 2007

OBSERVATION WELL INSTALLATION REPORT

Well No.	Boring No.
MW-08	SB-08

PROJECT	Former Fiedler Waterproofing & Masonry Site	**H&A FILE NO.**	0204520
LOCATION	91 Bruckner Boulevard, New York, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd LLC	**FIELD REP.**	P. DiNardo
CONTRACTOR	Lakewood Environmental Services	**DATE INSTALLED**	2/14/2023
DRILLER	Tim Kelly	**WATER LEVEL**	15.43 ft

TOC El. 27.82 ft

El. Datum NAVD 1988

Location See Plan

☐ **Guard Pipe**

☑ **Roadway Box**

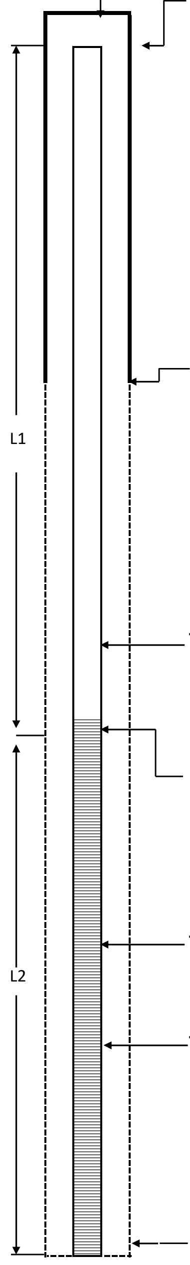
CONDITIONS

DTW: 15.43 ft

Weathered Bedrock

(Bottom of Exploration)

(Numbers refer to depth from ground surface in feet)



Type of protective cover/lock: Bolt down lid

Height of top of riser pipe below ground surface 3.1 **in**

Depth of bottom of guard pipe/roadway box 1.0 **ft**

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	NA	NA
Soil Cuttings	2.0	7.1
Bentonite Seal	9.1	2.0
Filter Sand	11.1	2.0

Type of riser pipe: Solid PVC

Inside diameter of riser pipe 2.0 **in**

Depth to top of well screen 13.1 **ft**

Type of screen Machine Slotted PVC

Screen gauge or size of openings 0.010 **in**

Diameter of screen 2.0 **in**

Type of backfill around screen #0 Filter Sand

Depth of bottom of borehole/well screen 23.1 **ft**

(Not to Scale)

13.1 ft + 10 ft = 23.1 ft

Riser Pay Length (L1) + Length of Screen (L2) = Pay length

COMMENTS:

Form 2007

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. MW-09
Boring No. SB-09

PROJECT	Former Fiedler Waterproofing & Masonry Site	**H&A FILE NO.**	0204520
LOCATION	91 Bruckner Boulevard, New York, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd LLC	**FIELD REP.**	P. DiNardo
CONTRACTOR	Lakewood Environmental Services	**DATE INSTALLED**	2/20/2023
DRILLER	Tim Kelly	**WATER LEVEL**	14.69 ft

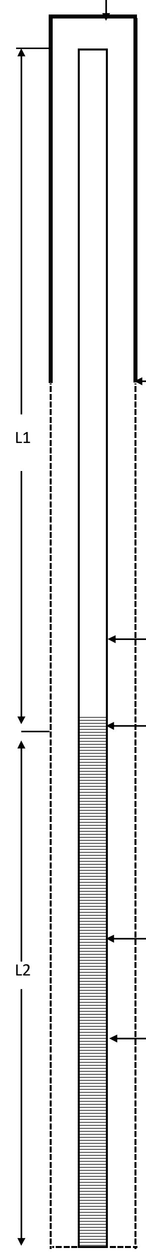
TOC El. **27.94** ft
El. Datum **NAVD 1988**
Location See Plan
☐ **Guard Pipe**
☑ **Roadway Box**

CONDITIONS

DTW: 14.69 ft

Weathered Bedrock

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



Type of protective cover/lock: Bolt down lid

Height of top of riser pipe below ground surface 1.9 **in**

Depth of bottom of guard pipe/roadway box 1.0 **ft**

Type of Seals	**Top of Seal (ft)**	**Thickness (ft)**
Concrete	NA	NA
Soil Cuttings	2.0	0.8
Bentonite Seal	2.8	2.0
Filter Sand	4.8	2.0

Type of riser pipe: Solid PVC
Inside diameter of riser pipe 2.0 **in**

Depth to top of well screen 6.8 **ft**

Type of screen Machine Slotted PVC
Screen gauge or size of openings 0.010 **in**
Diameter of screen 2.0 **in**
Type of backfill around screen #0 Filter Sand

Depth of bottom of borehole/well screen 16.8 **ft**

(Not to Scale)

6.8 ft + 10 ft = 16.8 ft
Riser Pay Length (L1) + Length of Screen (L2) = Pay length

COMMENTS:

Form 2007

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. MW-11
Boring No. SB-11

PROJECT	Former Fiedler Waterproofing & Masonry Site	**H&A FILE NO.**	0204520
LOCATION	91 Bruckner Boulevard, New York, NY	**PROJECT MGR.**	M. Conlon
CLIENT	91 Bruckner Blvd LLC	**FIELD REP.**	P. DiNardo
CONTRACTOR	Lakewood Environmental Services	**DATE INSTALLED**	2/16/2023
DRILLER	Tim Kelly	**WATER LEVEL**	14.76 ft

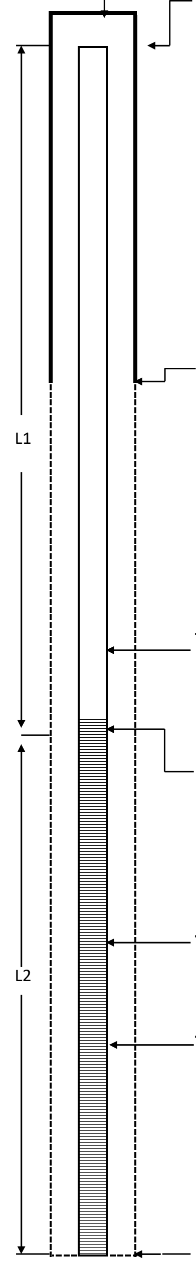
TOC El. 27.27 ft | **Location** See Plan | ☐ **Guard Pipe**
El. Datum NAVD 1988 | ☑ **Roadway Box**

CONDITIONS

DTW: 14.76 ft

Weathered Bedrock

(Bottom of Exploration)
(Numbers refer to depth from ground surface in feet)



Type of protective cover/lock: Bolt down lid

Height of top of riser pipe below ground surface 4.5 in

Depth of bottom of guard pipe/roadway box 1.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	NA	NA
Soil Cuttings	2.0	7.4
Bentonite Seal	9.4	2.0
Filter Sand	11.4	2.0

Type of riser pipe: Solid PVC

Inside diameter of riser pipe 2.0 in

Depth to top of well screen 13.4 ft

Type of screen Machine Slotted PVC

Screen gauge or size of openings 0.010 in

Diameter of screen 2.0 in

Type of backfill around screen #0 Filter Sand

Depth of bottom of borehole/well screen 23.4 ft

(Not to Scale)

13.4 ft	+	10 ft	=	23.4 ft
Riser Pay Length (L1)		Length of Screen (L2)		Pay length

COMMENTS:

Form 2007

APPENDIX D

Groundwater Sampling Logs

HALEY ALDRICH

LOW-FLOW GROUNDWATER SAMPLING RECORD

PROJECT	91 Bruckner Boulevard	H&A FILE NO.	0204520
LOCATION	91 Bruckner Boulevard	PROJECT MGR.	Mari Cate Conlon
CLIENT	91 Bruckner Blvd LLC	FIELD REP	P. DiNardo
CONTRACTOR	N/A	DATE	2/24/2023

GROUNDWATER SAMPLING INFORMATION

Well ID:	MW-01	**Well Volume:**	1.20 gallons	**Start Time:**	8:30
Well Depth:	23.35' (From top of riser pipe)	**Equipment:**	Peristaltic pump; Horiba	**Sample Time:**	10:15
Depth to Water:	15.99'				

Time	Volume purged, gallons	Temp, C (+/-3%)	Conductivity, us/cm (+/- 3%)	Dissolved Oxygen, mg/L (+/- 10%)	pH (+/-0.1)	ORP/eH, mv (+/-10mv)	Turbidity, NTU	Depth to Water (ft)
8:30	0.50	14.35	1.92	3.83	7.02	199	101	18.10
8:35	1.00	13.14	1.93	5.25	6.71	182	89	21.42
8:40	1.50	13.69	1.9	5.25	7.00	188	99	22.74

Note: Well did not achieve turbidity of less than 50 NTU due to entrained sediment nor purge of 10 well volumes due to low recharge.

Groundwater Purge/Sample Log

HALEY ALDRICH

LOW-FLOW GROUNDWATER SAMPLING RECORD

PROJECT	91 Bruckner Boulevard	H&A FILE NO.	0204520
LOCATION	91 Bruckner Boulevard	PROJECT MGR.	Mari Cate Conlon
CLIENT	91 Bruckner Blvd LLC	FIELD REP	P. DiNardo
CONTRACTOR	N/A	DATE	2/27/2023

GROUNDWATER SAMPLING INFORMATION

Well ID:	MW-02	**Well Volume:**	1.03 gallons	**Start Time:**	9:05
Well Depth:	20.09' (From top of riser pipe)	**Equipment:**	Peristalic pump; Horiba	**Sample Time:**	9:30
Depth to Water:	13.78'				

Time	Volume purged, gallons	Temp, C (+/-3%)	Conductivity, us/cm (+/- 3%)	Dissolved Oxygen, mg/L (+/- 10%)	pH (+/-0.1)	ORP/eH, mv (+/-10mv)	Turbidity, NTU	Depth to Water (ft)
9:05	0.25	13.15	1.23	5.67	7.44	-35	81.5	13.78
9:10	0.45	13.18	1.25	5.64	7.42	-29	62.0	14.11
9:15	0.65	13.19	1.28	5.62	7.41	-27	24.2	14.96
9:20	0.85	13.21	1.29	5.61	7.40	-21	16.4	15.70
9:25	1.10	13.22	1.31	5.60	7.40	-19	9.8	16.20

Groundwater Purge/Sample Log

LOW-FLOW GROUNDWATER SAMPLING RECORD

PROJECT	91 Bruckner Boulevard	H&A FILE NO.	0204520
LOCATION	91 Bruckner Boulevard	PROJECT MGR.	Mari Cate Conlon
CLIENT	91 Bruckner Blvd LLC	FIELD REP	P. DiNardo
CONTRACTOR	N/A	DATE	2/27/2023

GROUNDWATER SAMPLING INFORMATION

Well ID:	MW-03	**Well Volume:**	1.15 gallons	**Start Time:**	10:10
Well Depth:	23.14' (From top of riser pipe)	**Equipment:**	Peristalic pump; Horiba	**Sample Time:**	10:30
Depth to Water:	16.07'				

Time	Volume purged, gallons	Temp, C (+/-3%)	Conductivity, us/cm (+/- 3%)	Dissolved Oxygen, mg/L (+/-10%)	pH (+/-0.1)	ORP/eH, mv (+/-10mv)	Turbidity, NTU	Depth to Water (ft)
10:10	0.50	15.02	4.75	6.32	7.14	159	900.0	16.25
10:15	0.75	15.08	4.78	6.34	7.16	162	457.0	16.84
10:20	1.0	15.12	4.79	6.35	7.18	168	75.5	17.65
10:25	1.25	15.13	4.81	6.39	7.21	169	32.0	18.22

HALEY ALDRICH

LOW-FLOW GROUNDWATER SAMPLING RECORD

PROJECT	91 Bruckner Boulevard	H&A FILE NO.	0204520
LOCATION	91 Bruckner Boulevard	PROJECT MGR.	Mari Cate Conlon
CLIENT	91 Bruckner Blvd LLC	FIELD REP	P. DiNardo
CONTRACTOR	N/A	DATE	2/27/2023

GROUNDWATER SAMPLING INFORMATION

Well ID: MW-06
Well Volume: 0.89 gallons
Start Time: 14:15

Well Depth: 19.42' (From top of riser pipe)
Equipment: Peristaltic pump; Horiba
Sample Time: 14:30

Depth to Water: 13.98'

Time	Volume purged, gallons	Temp, C (+/-3%)	Conductivity, us/cm (+/- 3%)	Dissolved Oxygen, mg/L (+/- 10%)	pH (+/-0.1)	ORP/eH, mv (+/-10mv)	Turbidity, NTU	Depth to Water (ft)
14:15	0.25	14.60	1.25	6.23	7.62	135	20.2	14.76
14:20	0.50	14.56	1.25	6.30	7.54	145	7.1	16.54
14:25	0.75	14.60	1.25	6.31	7.50	138	7.0	18.34

LOW-FLOW GROUNDWATER SAMPLING RECORD

PROJECT	91 Bruckner Boulevard	H&A FILE NO.	0204520
LOCATION	91 Bruckner Boulevard	PROJECT MGR.	Mari Cate Conlon
CLIENT	91 Bruckner Blvd LLC	FIELD REP	P. DiNardo
CONTRACTOR	N/A	DATE	2/27/2023

GROUNDWATER SAMPLING INFORMATION

Well ID: MW-08
Well Volume: 1.20 gallons
Start Time: 10:50

Well Depth: 22.78' (From top of riser pipe)
Equipment: Peristaltic pump; Horiba
Sample Time: 11:15

Depth to Water: 15.43'

Time	Volume purged, gallons	Temp, C (+/-3%)	Conductivity, us/cm (+/- 3%)	Dissolved Oxygen, mg/L (+/- 10%)	pH (+/-0.1)	ORP/eH, mv (+/-10mv)	Turbidity, NTU	Depth to Water (ft)
10:50	0.25	14.15	3.61	1.76	7.34	357	50.3	15.43
10:55	0.50	14.20	3.65	1.80	7.31	352	32.8	16.10
11:00	0.75	14.23	3.70	1.82	7.30	349	10.0	16.96
11:05	1.0	14.25	3.72	1.84	7.29	347	8.2	17.54
11:10	1.3	14.26	3.75	1.85	7.29	346	5.4	18.13

Groundwater Purge/Sample Log

LOW-FLOW GROUNDWATER SAMPLING RECORD

PROJECT	91 Bruckner Boulevard	H&A FILE NO.	0204520
LOCATION	91 Bruckner Boulevard	PROJECT MGR.	Mari Cate Conlon
CLIENT	91 Bruckner Blvd LLC	FIELD REP	P. DiNardo
CONTRACTOR	N/A	DATE	2/27/2023

GROUNDWATER SAMPLING INFORMATION

Well ID: MW-11
Well Volume: 1.33 gallons
Start Time: 12:00

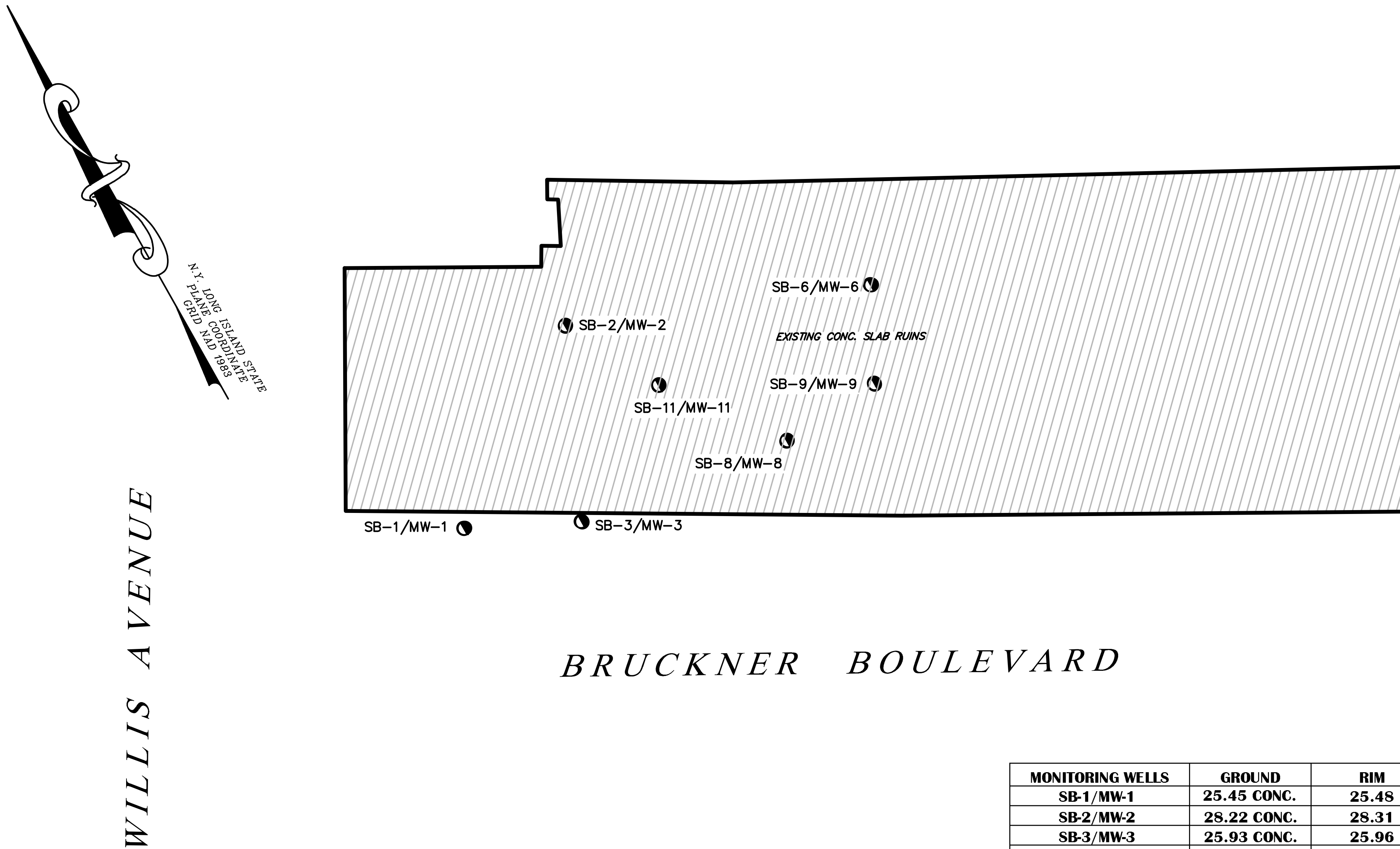
Well Depth: 23.14' (From top of riser pipe)
Equipment: Peristaltic pump; Horiba
Sample Time: 12:15

Depth to Water: 14.99'

Time	Volume purged, gallons	Temp, C (+/-3%)	Conductivity, us/cm (+/- 3%)	Dissolved Oxygen, mg/L (+/-10%)	pH (+/-0.1)	ORP/eH, mv (+/-10mv)	Turbidity, NTU	Depth to Water (ft)
12:00	0.25	14.30	1.30	3.08	8.23	15	139.0	15.76
12:05	0.50	14.89	1.33	3.04	8.03	9	87.5	17.14
12:10	0.75	15.09	1.40	3.01	7.96	13	106.0	19.71

Note: Well did not achieve turbidity of less than 50 NTU due to entrained sediment nor purge of 10 well volumes due to low recharge.

APPENDIX E
Monitoring Well Survey and Synoptic Gauging Results



UNAUTHORIZED ALTERATION OR ADDITION TO A SURVEY MAP BEARING A LICENSED LAND SURVEYOR'S SEAL IS A VIOLATION OF SECTION 7209, SUB-DIVISION 2, OF THE NEW YORK STATE EDUCATION LAW.

NOTES:

1. FIELD WORK PERFORMED ON FEBRUARY 24, 2023.
2. ELEVATION DATUM NAVD 1988 DERIVED USING RTK/KEYNET.NYBP BATTERY PARK CORS ARP ELEV.=57.21' (NAVD 88)

MONITORING WELLS	GROUND	RIM	PVC
SB-1/MW-1	25.45 CONC.	25.48	25.25
SB-2/MW-2	28.22 CONC.	28.31	27.89
SB-3/MW-3	25.93 CONC.	25.96	25.66
SB-6/MW-6	28.21 CONC.	28.22	27.86
SB-8/MW-8	28.08 CONC.	28.09	27.82
SB-9/MW-9	28.10 CONC.	28.12	27.94
SB-11/MW-11	27.65 CONC.	27.66	27.27

GRAPHIC SCALE

40 0 20 40

(IN FEET)
1 inch = 40 ft.

S:_Projects\2023\23-9858\CAD\23-9858 MW00.dwg Feb 27, 2023-3:58pm BY:(RogerMaandal)

DATE 02/27/2023

James J. Heiser
Professional Land Surveyor
JHEISER@DPKCONSULTING.NET

N.J. Lic: 24GS04331100
PA. Lic: SU075616
N.Y. Lic: 050932-1
CT. Lic: 70476

Date: 02/27/2023	Dr.: R.M.	Chk.: C.S.	SCALE: 1" = 40'	JOB No. 23-9858	Dwg: 23-9858 MW00

DPK LAND SURVEYING

DPK LAND SURVEYING, LLC
200 METROPLEX DRIVE - STE. 285, EDISON, NJ 08817
P:732-764-0100 F: 732-764-0990
NEW YORK CERTIFICATE OF AUTHORIZATION NO. 0012585

MONITORING WELL LOCATION MAP

FOR:
HALEY & ALDRICH OF NEW YORK

SITE:
91 BRUCKNER BLVD
BRONX, NEW YORK

Synoptic Monitoring Well Gauging Log

PROJECT	Former Fiedler Waterproofing & Masonry Site (BCP Site C203160)
LOCATION	91 Bruckner Boulevard
CLIENT	91 Bruckner Blvd LLC
H&A FILE NO.	0204520
PROJECT MANAGER	M. Conlon
FIELD REP.	P. DiNardo
GAUGING DATE	2/24/2023
WEATHER	40° F, Cloudy

MONITORING WELL ID	TIME	DEPTH TO WATER (FT BELOW TOC)	TOP OF CASING (FT)	GROUNDWATER ELEVATION (FT)
MW-01	8:10:00 AM	15.99	25.25	9.26
MW-02	8:15:00 AM	13.78	27.89	14.11
MW-03	8:13:00 AM	16.07	25.66	9.59
MW-06	8:30:00 AM	13.98	27.86	13.88
MW-08	8:22:00 AM	15.43	27.82	12.39
MW-11	8:18:00 AM	14.76	27.27	12.51

Comments:

1. Monitoring wells were surveyed by DPK Consulting on 24 February 2023
2. Wells were gauged on 24 February 2023
3. Elevation refers to the North American Vertical Datum of 1988 (NAVD88).

APPENDIX F
Soil Vapor Sampling Logs

Soil Vapor Purge Log
Former Fiedler Waterproofing Masonry Site
91 Bruckner Boulevard, Bronx, New York

Site: Former Fiedler Waterproofing & Masonry Site
Date: 2/15/2023, 2/16/2023
Personnel: P. DiNardo
Weather: Sunny
Humidity: Variable

Sample ID	Canister ID	Caniser Size	Flow Controller ID	Sample Start Time	Canister Start Pressure ("Hg)	Sample End Time	Canister End Pressure ("Hg)	Sample Start Date	Sample Type	Analyses Method
SV-01	2600	2.7-L	01824	9:15	-30.6	11:05	-6.8	2/15/2023	Soil Vapor	TO-15
SV-02	3107	2.7-L	01548	12:00	-30.4	14:00	-6.4	2/15/2023	Soil Vapor	TO-15
SV-03	2237	2.7-L	01961	12:06	-29.9	14:01	-7.0	2/15/2023	Soil Vapor	TO-15
SV-04	217	2.7-L	01492	8:53	-30.7	10:53	-6.2	2/15/2023	Soil Vapor	TO-15
SV-05	506	2.7-L	01697	12:10	-29.8	14:15	-6.2	2/15/2023	Soil Vapor	TO-15
SV-06	2738	2.7-L	01525	7:50	-29.3	10:05	-6.9	2/16/2023	Soil Vapor	TO-15
SV-07	3425	2.7-L	01099	12:15	-30.0	14:02	-6.8	2/16/2023	Soil Vapor	TO-15
SV-08	2763	2.7-L	0069	8:00	-29.4	9:50	-5.7	2/16/2023	Soil Vapor	TO-15
SV-09	2357	2.7-L	0648	12:16	-29.4	14:15	-6.7	2/16/2023	Soil Vapor	TO-15
SV-10	411	2.7-L	02176	8:30	-29.4	10:20	-6.7	2/15/2023	Soil Vapor	TO-15
SV-11	2481	2.7-L	01489	12:14	-30.3	14:10	-6.8	2/15/2023	Soil Vapor	TO-15

Notes:
Summas and flow regulators provided by Alpha Analytical Laboratory
Analyses for VOCs by Method TO-15 completed by Alpha Analytical Laboratory

APPENDIX G
Analytical Laboratory Reports (Sharefile Link)

https://haleyaldrich.sharefile.com/d-se0d23156e23e4c25b85db729b6347cca

APPENDIX H
Data Usability Summary Reports

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Data Usability Summary Report

Project Name: 91 Bruckner

Project Description: Soil Samples

Sample Date(s): 13 through 27 February 2023

Analytical Laboratory: Alpha Analytical – Westborough, MA

Validation Performed by: Oscar Cervantes

Validation Reviewed by: Katherine Miller

Validation Date: 10 March 2023

Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

1. **Sample Delivery Group Numbers L2307700, L2307869, L2308181, L2308771, L2310326, and L2310887.**
2. **Explanations**
3. **Glossary**
4. **Abbreviations**
5. **Qualifiers**

References

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- National Functional Guidelines (NFG) for Organic Data Review.
- National Functional Guidelines (NFG) for Inorganic Data Review.

Data reported in this sampling event were reported to the laboratory reporting limit (RL). Results found between the method detection limit MDL and RL are flagged J as estimated.

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOP). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQO) for the project and therefore usable; any exceptions are noted in the following pages.

1. Sample Delivery Group Numbers L2307700, L2307869, L2308181, L2308771, L2310326, and L2310887.

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG numbers L2307700, L2307869, L2308181, L2308771, L2310326, and L2310887. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol.

Samples were also received appropriately, identified correctly, and analyzed according to the COC with the following exceptions:

- One container for L2307700-27 was received broken; however, there was adequate sample remaining to perform the requested analysis.
- For samples L2307700-49 and -50, the collection time was specified by the client.
- A sample identified as FB-01-02132023 was listed on the Chain of Custody, but not received for the analysis of Per- and Polyfluoroalkyl Substances (PFAS). This was verified by the client.
- At client's request, herbicides analysis was not performed for SDG L2307869.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
SB-12 (6-8)	N	L2307700-01	02/13/2023	SO	A, B, C, D, E, F, G
SB-12 (12-14)	N	L2307700-02	02/13/2023	SO	A, B, C, D, E, F, G
SB-13 (0-0.5)	N	L2307700-03	02/13/2023	SO	A, B, C, D, E, F, G
SB-13 (6-8)	N	L2307700-04	02/13/2023	SO	A, B, C, D, E, F, G
SB-13 (12-14)	N	L2307700-05	02/13/2023	SO	A, B, C, D, E, F, G
SB-04 (0-0.5)	N	L2307700-06	02/13/2023	SO	A, B, C, D, E, F, G
SB-04 (6-8)	N	L2307700-07	02/13/2023	SO	A, B, C, D, E, F, G
SB-04 (12-14)	N	L2307700-08	02/13/2023	SO	A, B, C, D, E, F, G
SB-05 (0-0.5)	N	L2307700-09	02/13/2023	SO	A, B, C, D, E, F, G, H
SB-10 (0-0.5)	N	L2307700-11	02/13/2023	SO	A, B, C, D, E, F, G
SB-10 (6-8)	N	L2307700-12	02/13/2023	SO	A, B, C, D, E, F, G
SB-10 (12-14)	N	L2307700-13	02/13/2023	SO	A, B, C, D, E, F, G
SB-14 (0-0.5)	N	L2307700-14	02/13/2023	SO	A, B, C, D, E, F, G
SB-14 (6-8)	N	L2307700-15	02/13/2023	SO	A, B, C, D, E, F, G
SB-14 (12-14)	N	L2307700-16	02/13/2023	SO	A, B, C, D, E, F, G
DUP-01-02132023	FD	L2307700-17	02/13/2023	SO	A, B, C, D, E, F, G
DUP-02-02132023	FD	L2307700-18	02/13/2023	SO	A, B, C, D, E, F, G
DUP-03-02132023	FD	L2307700-19	02/13/2023	SO	A, B, C, D, E, F, G
SB-12 (0-0.5)	N	L2307700-20	02/13/2023	SO	A, B, C, D, E, F, G

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
SB-05 (6-8)	N	L2307700-22	02/13/2023	SO	A, B, C, D, E, F, G
SB-05 (12-14)	N	L2307700-23	02/13/2023	SO	A, B, C, D, E, F, G
SB-07 (0-0.5)	N	L2307700-27	02/13/2023	SO	A, B, C, D, E, F, G
SB-07 (6-8)	N	L2307700-28	02/13/2023	SO	A, B, C, D, E, F, G
SB-07 (12-14)	N	L2307700-29	02/13/2023	SO	A, B, C, D, E, F, G
FB-01-02132023	FB	L2307700-51	02/13/2023	WQ	D, E, F, G, I, J, K
TB-02132023	TB	L2307700-52	02/13/2023	WQ	F
SB-08 (0-0.5)	N	L2307869-01	02/14/2023	SO	A, B, C, D, E, F, G
SB-08 (6-8)	N	L2307869-02	02/14/2023	SO	A, B, C, D, E, F, G
SB-08 (12-14)	N	L2307869-03	02/14/2023	SO	A, B, C, D, E, F, G
SB-01 (0-0.5)	N	L2307869-04	02/14/2023	SO	A, B, C, D, E, F, G
SB-01 (6-8)	N	L2307869-05	02/14/2023	SO	A, B, C, D, E, F, G
SB-01 (12-14)	N	L2307869-06	02/14/2023	SO	A, B, C, D, E, F, G
FB-02-02142023	FB	L2307869-07	02/14/2023	WQ	D, E, F, G, I, J, K
TB-02142023	TB	L2307869-08	02/14/2023	WQ	F
SB-03 (0-0.5)	N	L2308181-01	02/15/2023	SO	A, B, C, D, E, F, G
SB-03 (6-8)	N	L2308181-02	02/15/2023	SO	A, B, C, D, E, F, G
SB-03 (12-14)	N	L2308181-03	02/15/2023	SO	A, B, C, D, E, F, G
SB-02 (0-0.5)	N	L2308181-04	02/15/2023	SO	A, B, C, D, E, F, G
SB-02 (6-8)	N	L2308181-05	02/15/2023	SO	A, B, C, D, E, F, G
SB-02 (12-14)	N	L2308181-06	02/15/2023	SO	A, B, C, D, E, F, G
SB-11 (0-0.5)	N	L2308181-07	02/15/2023	SO	A, B, C, D, E, F, G
SB-11 (6-8)	N	L2308181-08	02/15/2023	SO	A, B, C, D, E, F, G
SB-11 (12-14)	N	L2308181-09	02/15/2023	SO	A, B, C, D, E, F, G
SB-06 (0-0.5)	N	L2308181-10	02/15/2023	SO	A, B, C, D, E, F, G
SB-06 (6-8)	N	L2308181-11	02/15/2023	SO	A, B, C, D, E, F, G
SB-06 (12-14)	N	L2308181-12	02/15/2023	SO	A, B, C, D, E, F, G
SB-09 (0-0.5)	N	L2308181-13	02/15/2023	SO	A, B, C, D, E, F, G
SB-09 (6-8)	N	L2308181-14	02/15/2023	SO	A, B, C, D, E, F, G
SB-09 (12-14)	N	L2308181-15	02/15/2023	SO	A, B, C, D, E, F, G
TB-02152023	TB	L2308181-16	02/15/2023	WQ	F
SB-04-02 (0-0.5)	N	L2308771-01	02/17/2023	SO	A, B, C, D, E, F, G
SB-04-03 (6-8)	N	L2308771-02	02/17/2023	SO	A, B, C, D, E, F, G
FB-04-02172023	FB	L2308771-03	02/17/2023	WQ	B, D, E, F, G, J, K
TB-04-02172023	TB	L2308771-04	02/17/2023	WQ	F
SB-15 (2-4)	N	L2310326-01	02/27/2023	SO	A, B, C, F, G
SB-16 (2-4)	N	L2310326-02	02/27/2023	SO	A, B, C, F, G
SB-17 (3-5)	N	L2310326-03	02/27/2023	SO	A, B, C, F, G
TB-06-02272023	TB	L2310326-04	02/27/2023	WQ	F
SB-12 (6-8)	N	L2310887-01	02/13/2023	SO	H
SB-13 (0-0.5)	N	L2310887-02	02/13/2023	SO	H
SB-04 (0-0.5)	N	L2310887-03	02/13/2023	SO	H

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
SB-14 (0-0.5)	N	L2310887-04	02/13/2023	SO	H
SB-12 (0-0.5)	N	L2310887-05	02/13/2023	SO	H
SB-03 (0-0.5)	N	L2310887-06	02/15/2023	SO	H
SB-03 (6-8)	N	L2310887-07	02/15/2023	SO	H
SB-02 (0-0.5)	N	L2310887-08	02/15/2023	SO	H
SB-11 (0-0.5)	N	L2310887-09	02/15/2023	SO	H
SB-11 (6-8)	N	L2310887-10	02/15/2023	SO	H

Method Holding Times			
A.	SM2540G	Total Solids	7 days
B.	SW6010D	Metals (by Optical Emission Spectrometry)	180 days
C.	SW7471B	Mercury (in Solids)	28 days extraction / 48 hours analysis
D.	SW8081B	Organochlorine Pesticides	14 days extraction / 40 days analysis
E.	SW8082A	Polychlorinated biphenyls (PCBs)	14 days extraction / 40 days analysis
F.	SW8260D	Volatile Organic Compounds (VOCs)	14 days
G.	SW8270E	Semivolatile Organic Compounds (SVOCs)	14 days extraction / 40 days analysis
H.	SW6010DR	Metals, Toxic Characteristic Leaching Procedure (TCLP)	180 days
I.	SW6020B	Metals	180 days
J.	SW7470A	Mercury (in Liquids)	28 days extraction / 48 hours analysis
K.	SW8270ESIM	Polycyclic Aromatic Hydrocarbons (PAHs)	7 days extraction / 40 days analysis

1.2 MULTIPLE SAMPLE RESULTS

The laboratory reported multiple results for the samples listed below. The validator chose the results that best met the DQO of the project.

Lab ID	Method	Analyte	Qualification
L2307700-03 L2307700-17	8270E	Various Analytes	The laboratory reanalyzed the sample due to the results exceeding the calibration range. The original results are marked nonreportable, and the reanalysis results are accepted.
L2308181-04	8270E	Various Analytes	The laboratory reanalyzed the sample due to the results exceeding the calibration range. The original results are marked nonreportable, and the reanalysis results are accepted.
L2308181-05	8081B	4,4’-DDT	The laboratory reanalyzed the sample due to the results exceeding the calibration range. The original results are marked nonreportable, and the reanalysis results are accepted.

1.3 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol.

1.4 REPORTING LIMITS AND SAMPLE DILUTIONS

All sample dilutions were reviewed and found to be justified. Dilution of the project samples were required to bring calibration of target analytes within calibration range, matrix interference, foaming at the time of purging, or abundance of non-target analytes.

1.5 REPORTING BASIS (WET/DRY)

Refer to section E 1.1. Soil/sediment data in this SDG were reported on a dry weight basis.

Where reported, percent solid results were reviewed and found to be within limits.

1.6 SURROGATE RECOVERY COMPLIANCE

Refer to section E 1.2. The percent recovery (%R) for each surrogate compound added to each project sample were determined to be within the laboratory specified quality control (QC) limits, with the following exceptions:

Method	Sample ID	Lab ID	Surrogate	Dilution	%R	Qualification
8081B	SB-12 (6-8’)	L2307700-01	Decachlorobiphenyl	1x	197%	None, samples are ND
8081B	SB-13 (0-0.5’)	L2307700-03	Decachlorobiphenyl	1x	364%	J+/None target compounds*
8081B	DUP-01-02132023	L2307700-17	Decachlorobiphenyl	1x	171%	None, samples are ND
8081B	SB-02 (0-0.5’)	L2308181-04	Decachlorobiphenyl	1x	171%	J+/None target compounds*
8081B	SB-02 (6-8’)	L2308181-05	Decachlorobiphenyl	1x	171%	J+/None target compounds*

** Compounds targeted by decachlorobiphenyl: All 8081B analytes*

1.7 LABORATORY CONTROL SAMPLES

Refer to section E 1.3. Compounds associated with the laboratory control samples (LCS) analyses associated with client samples exhibited recoveries within the specified limits with the following exceptions:

SDG #	Sample Type	Method	Batch ID	Analyte	%R/RPD	Qualifier	Affected Samples
L2307700	LCS/LCSD	8260	WG1744762-3	Acetone	161%/153%	J/None	L2307700-17
L2307700	LCS/LCSD	8260	WG1744762-3/4	Carbon disulfide	146%/141%	J/None	None, samples are ND
L2307700	LCS	8260	WG1744762-3/4	2-butanone	132%	J/None	None, samples are ND
L2307700	LCS/LCSD	8260	WG1744772-3/4	Trichlorofluoromethane	57%/60%	J/UJ	L2307700-51, -52
L2307700	LCS/LCSD	8260	WG1744772-3/4	1,1-Dichloroethene	55%/58%	J/UJ	L2307700-51, -52
L2307700	LCS	8260	WG1744772-3/4	Ethyl ether	58%	J/UJ	L2307700-51, -52
L2307700	LCS/LCSD	8260	WG1745143-3/4	Carbon disulfide	160%/159%	J/None	None, samples are ND
L2307700	LCS/LCSD	8260	WG1745260-3/4	Carbon disulfide	145%/148%	J/None	None, samples are ND
L2307700	LCS	8270E	WG1744055-3	Carbazole	54%	J/UJ	L2307700-51
L2307700	LCSD	8270E	WG1744100-3	Hexachlorocyclopentadiene	37%	J/UJ	L2307700-14, -22, -23
L2307700	LCSD	8270E	WG1744100-3	4-Chloroaniline	39%	J/UJ	L2307700-14, -22, -23
L2307869	LCS/LCSD	8260	WG1745041-3/4	Carbon Disulfide	160%/150%	J/None	None, samples are ND
L2307869	LCS/LCSD	8260	WG1745273-3/4	Chloromethane	132%/135%	J/None	None, samples are ND
L2307869	LCS/LCSD	8260	WG1745273-3/4	Carbon Disulfide	160%/156%	J/None	None, samples are ND
L2307869	LCS/LCSD	8260	WG1746380-3/4	Acetone	150%/143%	J/None	L2307869-02

SDG #	Sample Type	Method	Batch ID	Analyte	%R/RPD	Qualifier	Affected Samples
L2307869	LCSD	8270	WG1744524-2/3	4-Chloroaniline	39%	J/UJ	L2307869-01-06
L2307869	LCS	8270	WG1744993-2/3	Pentachlorophenol	146%	J/None	None, samples are ND
L2307869	LCSD	8270	WG1744524-2/3	1,4-Dioxane	38%	J/UJ	L2307869-01-06
L2308181	LCS/LCSD	8260	WG1745634-3/4	Carbon Disulfide	160%/158%	J/None	None, samples are ND
L2308181	LCS/LCSD	8260	WG1746504-3/4	Carbon Disulfide	133%/140%	J/None	None, samples are ND
L2308181	LCS	8270	WG1745419-2/3	Phenol	91%	J/None	None, samples are ND
L2308771	LCS/LCSD	8260	WG1746883-3/4	Acetone	143%/148%	J/None	L2308771-01, -02
L2308771	LCS/LCSD	8260	WG1746883-3/4	Carbon disulfide	140%/143%	J/None	None, samples are ND
L2308771	LCS/LCSD	8260	WG1746973-3/4	Carbon disulfide	150%/150%	J/None	None, samples are ND
L2308771	LCSD	8270	WG1746093-2/3	4-Nitrophenol	118%	J/None	None, samples are ND
L2308771	LCS	8270	WG1746283-2/3	4-Chloroaniline	37%	J/UJ	L2308771-03
L2308771	LCS	8270	WG1746283-2/3	Carbazole	54%	J/UJ	L2308771-03
L2310326	LCS/LCSD	8260	WG1750220-3/4	Carbon disulfide	136%/131%	J/None	None, samples are ND
L2310326	LCS	8260	WG1750220-3/4	2-Hexanone	133%	J/None	None, samples are ND
L2310326	LCS/LCSD	8260	WG1750220-3/4	Bromochloromethane	68%/68%	J/UJ	L2310326-01-03
L2310326	LCS/LCSD	8260	WG1750220-3/4	Trans-1,4-dichloro-2-butene	134%	J/None	None, samples are ND
L2310326	LCS/LCSD	8270	WG1749782-2/3	4-Chloroaniline	30%/25%	J/UJ	L2310326-01-03
L2310326	LCS/LCSD	8270	WG1749782-2/3	Benzoic Acid	0%/0%	J/UJ	L2310326-01-03

1.8 MATRIX SPIKE SAMPLES

Refer to section E 1.4. The sample(s) below were used for matrix spike/matrix spike duplicate (MS/MSD):

Lab Sample Number	Matrix Spike/Matrix Spike Duplicate Sample Client ID	Method(s)
L2307869-01	SB-08 (0-0.5)	6020D
L2307869-07	FB-02-02142023	6020D
L2308181-13	SB-09 (0-0.5)	8270E, 6020D, 8082A, 8081B
L2308771-01	SB-04-02 (0-0.5)	8260D, 8270E
L2308771-02	SB-04-03 (6-8)	8270E
L2310887-01	SB-12 (6-8’)	SW6010DR

The MS/MSD recoveries and the relative percent difference (RPD) between the MS and MSD results were within the specified limits with the following exceptions:

Sample Type	Method	Parent Sample	Analyte	%R/RPD	Qualifier	Affected Samples
MS	6020B	SB-08 (0-0.5)	Aluminum	218%	NA	None, native sample > 4x the spike added
MS	6020B	SB-08 (0-0.5)	Calcium	71%	NA	None, native sample > 4x the spike added
MS	6020B	SB-08 (0-0.5)	Iron	1850%	NA	None, native sample > 4x the spike added
MS	6020B	SB-08 (0-0.5)	Magnesium	683%	NA	None, native sample > 4x the spike added
MS	6020B	SB-08 (0-0.5)	Copper	46%	NA	None, serial dilution recovery acceptable.
MS	6020B	SB-09 (0-0.5)	Aluminum	0	NA	None, native sample > 4x the spike added
MS	6020B	SB-09 (0-0.5)	Calcium	388%	NA	None, native sample > 4x the spike added
MS	6020B	SB-09 (0-0.5)	Iron	0%	NA	None, native sample > 4x the spike added
MS	6020B	SB-09 (0-0.5)	Magnesium	182%	NA	None, native sample > 4x the spike added

Sample Type	Method	Parent Sample	Analyte	%R/RPD	Qualifier	Affected Samples
MS	6020B	SB-09 (0-0.5)	Manganese	281%	NA	None, native sample > 4x the spike added
MS/MSD	8270	SB-09 (0-0.5)	Benzoic Acid	0%/0%	J/UJ	2308181-13
MS/MSD	8260	SB-09 (0-0.5)	Various Analytes	< 70%	J/UJ	2308181-13
MS/MSD	8260	SB-09 (0-0.5)	Hexachlorocyclopentadiene	37%/39%	J/UJ	2308181-13
MS	6020	SB-09 (0-0.5)	Aluminum	0%	NA	None, native sample > 4x the spike added
MS/MSD	6020	SB-09 (0-0.5)	Calcium	388%/464%	NA	None, native sample > 4x the spike added
MS	6020	SB-09 (0-0.5)	Iron	0%	NA	None, native sample > 4x the spike added
MS/MSD	6020	SB-09 (0-0.5)	Magnesium	182%/281%	NA	None, native sample > 4x the spike added
MS	6020	SB-09 (0-0.5)	Manganese	281%	NA	None, native sample > 4x the spike added
MS/MSD	8270E	SB-04-02 (0-0.5)	Benzoic Acid	0%/0%	J/UJ	2308771-01
MS/MSD	8270E	SB-04-03 (6-8)	Fluoranthene	0%/0%	NA	None, native sample > 4x the spike added
MS/MSD	8270E	SB-04-03 (6-8)	Phenanthrene	0%/0%	NA	None, native sample > 4x the spike added
MS/MSD	8270E	SB-04-03 (6-8)	Pyrene	0%/0%	NA	None, native sample > 4x the spike added
MS/MSD	8270E	SB-04-03 (6-8)	Benzoic Acid	0%/0%	J/UJ	2308771-02
MS/MSD	8270E	SB-04-03 (6-8)	2,4-dinitrophenol	0%/0%	J/UJ	2308771-02
MS/MSD	6020	SB-04-03 (6-8)	Mercury	RPD = 31	J/None	L2308771-02
MS	8260	SB-04-02 (0-0.5’)	Tetrachloroethene	68%	J/UJ	L2308771-01
MS	8260	SB-04-02 (0-0.5’)	Chlorobenzene	63%	J/UJ	L2308771-01
MS	8260	SB-04-02 (0-0.5’)	Trichlorofluoromethane	69%	J/UJ	L2308771-01

Sample Type	Method	Parent Sample	Analyte	%R/RPD	Qualifier	Affected Samples
MS	8260	SB-04-02 (0-0.5’)	Bromoform	63%	J/UJ	L2308771-01
MS	8260	SB-04-02 (0-0.5’)	1,1,2,2-Tetrachloroethane	58%	J/UJ	L2308771-01
MS	8260	SB-04-02 (0-0.5’)	Ethylbenzene	66%	J/UJ	L2308771-01
MS	8260	SB-04-02 (0-0.5’)	Various Analytes	< 70%	J/UJ	L2308771-01
MS/MSD	8270	SB-04-02 (0-0.5’)	Hexachlorocyclopentadiene	39%/33%	J/UJ	L2308771-01
MS/MSD	8270	SB-04-03 (6-8’)	Hexachlorocyclopentadiene	24%/30%	J/UJ	L2308771-02
MS/MSD	8270	SB-04-03 (6-8’)	Various Analytes	< 40%	J/UJ	L2308771-02
MS/MSD	8081	SB-04-02 (0-0.5’)	4,4’-DDD	165%/151%	J/None	None, samples are ND
MSD	6020	SB-04-02 (0-0.5’)	Sodium	128%	J/None	None, samples are ND

1.9 BLANK SAMPLE ANALYSIS

Refer to section E 1.5. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (µg/kg)	Qualifier	Affected Samples
Method Blank	WG1744054-1	Fluoranthene	0.02	NA	None, samples are ND
		Benzo(a)anthracene	0.03	NA	
		Benzo(a)pyrene	0.03	NA	
		Benzo(b)fluoranthene	0.03	NA	
		Benzo(k)fluoranthene	0.01	NA	
		Benzo(ghi)perylene	0.04	NA	
		Fluorene	0.02	NA	
		Phenanthrene	0.02	NA	
		Indeno(1,2,3-cd)pyrene	0.03	NA	
		Pyrene	0.02	NA	
Method Blank	WG1744202-1	Calcium, total	1.56	NA	None, samples > 10x blank
Method Blank	WG1744202-1	Iron, total	0.686	NA	None, samples > 10x blank
Method Blank	WG1744244-1	Manganese, total	0.00208	NA	None, samples are ND
Method Blank	WG1744244-1	Thallium, total	0.000233	RL U	L2307700-51

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (µg/kg)	Qualifier	Affected Samples
Method Blank	WG1744290-1	Chromium, total	0.064	NA	None, samples are >10x blank
Method Blank	WG1744290-1	Sodium, total	3.61	RL U	L2307700-29
Method Blank	WG1744300-1	Calcium, total	1.73	NA	None, samples are >10x blank
		Chromium, total	0.394	NA	None, samples are >10x blank
		Magnesium, total	1.02	NA	None, samples are >10x blank
		Manganese, total	0.066	NA	None, samples are >10x blank
		Nickel, total	0.13	NA	None, samples are >10x blank
		Sodium, total	4.3	NA	None, samples are >10x blank
Method Blank	WG1746380-5	Bromomethane	1.8	NA	None, samples are ND
Method Blank	WG1744993-1	Acenaphthene	0.02	NA	None, samples are ND
Method Blank	WG1744993-1	Benzo(a)anthracene	0.02	RL U	L2307869-07
Method Blank	WG1744993-1	Acenaphthylene	0.01	NA	None, samples are ND
Method Blank	WG1744993-1	Anthracene	0.03	NA	None, samples are ND
Method Blank	WG1744993-1	Fluorene	0.03	RL U	L2307869-07
Method Blank	WG1744993-1	Phenanthrene	0.04	NA	None, samples are ND
Method Blank	WG1744993-1	Pyrene	0.02	RL U	L2307869-07
Method Blank	WG1744993-1	2-Methylnaphthalene	0.03	NA	None, samples are ND
Method Blank	WG1744958-1	Manganese, total	0.146	NA	None, samples are >10x blank
Method Blank	WG1745042-1	Thallium, total	0.00018	NA	None, samples are ND
Method Blank	WG1745634-1	Acetone	5.5	RL U	L2308181-01, -02, -04, -08, -11, -13, -15
Method Blank	WG1745634-1	Acetone	5.5	Result U	L2308181-06, -07, -10, -14
Method Blank	WG1745634-5	Naphthalene	1.5	RL U	L2308181-01, -02
Method Blank	WG1746504-5	Naphthalene	1.5	RL U	L2308181-03

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (µg/kg)	Qualifier	Affected Samples
Method Blank	WG1745134-1	Iron, total	0.41	NA	None, samples are >10x blank
Method Blank	WG1745134-1	Lead, total	0.402	RL U	L2308181-06, -09, -10-12, -14
Method Blank	WG1745134-1	Lead, total	0.402	Result U	L2308181-13
Method Blank	WG1745134-1	Potassium, total	8.87	NA	None, samples are >10x blank
Method Blank	WG1745134-1	Sodium, total	6.96	NA	None, samples are >10x blank
Method Blank	WG1745134-1	Zinc, total	0.154	NA	None, samples are >10x blank
Method Blank	WG1746213-1	Iron, total	1.22	NA	None, samples are >10x blank
Method Blank	WG1746213-1	Sodium, total	2.43	RL U	L2308771-01
Method Blank	WG1746582-1	Iron, total	0.0229	RL U	L2308771-03
Method Blank	WG1746583-1	Mercury, total	0.00019	NA	None, samples are ND

The analysis of the blank samples for field quality control was free of target compounds, with the following exceptions:

Blank Type	Date of Blank	Analyte Detected in Blank	Concentration (µg/kg)	Qualifier	Affected Samples
Field Blank	2/13/23	Aluminum	0.00486	NA	None, samples > 10x blank
Field Blank	2/13/23	Potassium	0.105	NA	None, samples > 10x blank
Field Blank	2/13/23	Sodium	0.238	NA	None, samples > 10x blank
Field Blank	2/13/23	Zinc	0.00627	NA	None, samples > 10x blank
Field Blank	2/13/23	Calcium	0.125	NA	None, samples > 10x blank
Field Blank	2/13/23	Acetone	2.2	RL U	L2307700-01, -03, -04, -05, -06, -08, -09, -11, -14, -51

1.10 DUPLICATE SAMPLE ANALYSIS

Refer to section E 1.6. The following sample(s) were used for laboratory duplicate analysis and the RPDs were all below 20 percent (or the absolute difference rule was satisfied if detects were less than 5 times the RL). Any exceptions are noted below and qualified.

Lab Sample Number	Laboratory Duplicate Sample Client ID	Method(s)
L2307700-22	SB-05 (6-8’)	A
L2307869-01	SB-08 (0-0.5’)	B
L2307869-01	FB-02-02142023	B
L2308181-13	SB-09 (0-0.5’)	A
L2308771-03	FB-04-02172023	B
L2310887-01	SB-12 (6-8’)	H

Lab Sample Number	Laboratory Duplicate Sample Client ID	Method(s)/Analyte	% RPD	Qualification
L2307869-01	SB-08 (0-0.5’)	SW6010 / Arsenic	42	J/UJ, RPD > 20%
L2307869-01	SB-08 (0-0.5’)	SW6010 / Barium	23	J/UJ, RPD > 20%
L2307869-01	SB-08 (0-0.5’)	SW6010 / Lead	22	J/UJ, RPD > 20%
L2307869-01	SB-08 (0-0.5’)	SW6010 / Sodium	24	J/UJ, RPD > 20%

The following sample(s) were used for field duplicate analysis. The RPD comparison for detections in either the parent or duplicate sample(s) is shown below. RPDs were all below 50 percent for soil/sediment (or the absolute difference rule was satisfied if detects were less than 5 times the RL). Any exceptions are noted below and qualified.

Primary Sample ID	Duplicate Sample ID	Method(s)
SB-14 (0-0.5)	DUP-01-02132023	A, B, C, D, E, F, G
SB-14 (6-8)	DUP-02-02132023	A, B, C, D, E, F, G
SB-14 (12-14)	DUP-03-02132023	A, B, C, D, E, F, G

Field Duplicate RPD Calculations:

Method(s): 8270E				
Analyte (µg/kg)	**Primary Sample ID** SB-14 (0-0.5)	**Duplicate Sample ID** DUP-01	**% RPD**	**Qualification**
2-Methylnapthalene	ND U	4300	NA	J/UJ, Abs. Diff. > RL
Acenaphthene	40	17000	NA	J/UJ, Abs. Diff. > RL
Acenaphthylene	38	3700	NA	J/UJ, Abs. Diff. > RL
Analyte (µg/kg)	**Primary Sample ID** SB-14 (6-8)	**Duplicate Sample ID** DUP-02	**% RPD**	**Qualification**
Copper	27.9	13	73	J/UJ, RPD>50
Fluoranthene	230	ND U	NA	J/UJ, Abs. Diff. > RL
Lead	12	3.44	NA	J/UJ, Abs. Diff. > RL
Nickel	7.79	10.6	NA	J/UJ, Abs. Diff. > RL
Pyrene	240	ND U	NA	J/UJ, Abs. Diff. > RL
Analyte (µg/kg)	**Primary Sample ID** SB-14 (12-14)	**Duplicate Sample ID** DUP-03	**% RPD**	**Qualification**
Nickel	9.74	12.3	NA	J/UJ, Abs. Diff. > RL

1.11 PRECISION AND ACCURACY

Refer to section E 1.7. Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

1.12 CONFIRMATION COLUMN REVIEW

Refer to section E 1.8. All RPDs were within control limits, with the following exceptions:

Method	Analyte	Sample	RPD	Action
USEPA 8081	Chlordane	L2308181-04	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	Heptachlor epoxide	L2308181-04	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	gamma-Chlordane (trans)	L2308181-06	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	Chlordane	L2308181-05	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	Heptachlor epoxide	L2308181-05	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	alpha-Chlordane (cis)	L2308181-05	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	Chlordane	L2307700-03	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	Heptachlor	L2307700-03	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	Heptachlor	L2307700-04	> 40%	**Qualify data estimated J/UJ.**
USEPA 8081	alpha-Chlordane (cis)	L2307700-04	> 40%	**Qualify data estimated J/UJ.**

1.13 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the DQOs for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable as no data was rejected except for rejected data noted below. A summary of qualifiers applied to this data set is shown in Table 1.

2. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.1 Reporting Basis (Wet/Dry)
  - Soil samples can be reported on either a wet (as received) or dry weight basis. Dry weight data indicate calculations were made to compensate for the moisture content of the soil sample.
  - Percent (%) solids should be appropriately considered when evaluating analytical results for non-aqueous samples. Sediments with high moisture content may or may not be successfully analyzed by routine analytical methods. Samples should have greater than or equal to 30 percent solids to be appropriately quantified.
- E 1.2 Surrogate Recovery Compliance
  - Surrogates, also known as system monitoring compounds, are compounds added to each sample prior to sample preparation to determining the efficiency of the extraction procedure by evaluating the percent recovery (%R) of the compounds.
- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.4 Matrix Spike Samples
  - Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies.
  - For inorganic methods, when a matrix spike recovery falls outside of the control limits and the sample result is less than four times the spike added, a post digestion spike (PDS) is performed.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
  - The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The relative percent difference (RPD) or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy

- Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.
- Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.

- E 1.8 Confirmation Column Review
  - When analyzing for pesticides and polychlorinated biphenyls (PCB), compound identification based on single-column analysis should be confirmed on a second column or supported by at least one other qualitative technique. When confirmed on a second column, the relative percent difference (RPD) should not exceed 40 percent.

3. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB   Equipment Blank Sample
  - FB   Field Blank Sample
  - FD   Field Duplicate Sample
  - N   Primary Sample
  - TB   Trip Blank Sample
- Units:
  - µg/kg   microgram per kilogram
  - µg/L   microgram per liter
  - µg/m^3 microgram per cubic meter
  - mg/kg   milligram per kilogram
  - mg/L   milligram per liter
  - ppb v/v   parts per billion volume/volume
  - pCi/L   picocuries per liter
  - pg/g   picograms per gram
- Matrices:
  - AA   Ambient Air
  - GS   Soil Gas
  - GW/WG   Groundwater
  - QW   Water Quality
  - IA   Indoor Air
  - SE   Sediment
  - SO   Soil
  - WQ   Water Quality control matrix
  - WS   Surface Water
- Table Footnotes:
  - NA   Not applicable
  - ND   Non-detect
  - NR   Not reported
- Common Symbols:
  - %   percent
  - <   less than
  - ≤   less than or equal to
  - >   greater than
  - ≥   greater than or equal to
  - =   equal
  - °C   degrees Celsius
  - ±   plus or minus
  - ~   approximately
  - x   times (multiplier)

4. Abbreviations

%D	Percent Difference
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation
%v/v	Percent volume by volume
µg/L	micrograms per liter
2s	2 sigma
4,4-DDT	4 4-dichlorodiphenyltrichloroethane
Abs Diff	Absolute Difference
amu	atomic mass unit
BPJ	Best Professional Judgement
BS	Blank Spike
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CCVL	Continuing Calibration Verification Low
COC	Chain of Custody
COM	Combined Isotope Calculation
Cr (VI)	Hexavalent Chromium
CRI	Collision Reaction Interface
DoD	Department of Defense
DQO	data quality objective
DUSR	Data Usability Summary Report
EMPC	Estimated Maximum Possible Concentration
FBK	Field Blank Contamination
FDP	Field Duplicate
GC	Gas Chromatograph
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
H2	Hydrogen gas
HCl	Hydrochloric Acid
ICAL	Initial Calibration
ICB	Initial Calibration Blank
ICP/MS	Inductively Coupled Plasma/ Mass Spectrometry
ICV	Initial Calibration Verification
ICVL	Initial Calibration Verification Low
IPA	Isopropyl Alcohol
LC	Laboratory Control
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MBK	Method Blank Contamination
MDC	Minimum Detectable Concentration
MDL	Laboratory Method Detection Limit
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	not applicable
ND	Non-Detect
NFG	National Functional Guidelines
NH_3	Ammonia
NYSDEC	New York State Department of Environmental Conservation
PAH	polycyclic aromatic hydrocarbon
PCB	Polychlorinated Biphenyl
PDS	Post Digestion Spike
PEM	Performance Evaluation Mixture
PFAS	Per- and Polyfluoroalkyl Substances
PFBA	Perfluorbutanoic Acid
PFD	Perfluorodecalin
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane sulfonate
PFPeA	Perfluoropentanoic Acid
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
R^2	R-squared value
Ra-226	Radium-226
Ra-228	Radium-228
RESC	Resolution Check Measure
RL	Laboratory Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factors
RT	Retention Time
SAP	sampling analysis plan
SDG	Sample Delivery Group
SIM	Selected ion monitoring
SOP	Laboratory Standard Operating Procedures
SPE	Solid Phase Extraction
SVOC	Semi-Volatile Organic Compounds
TCLP	Toxicity Characteristic Leaching Procedure
TIC	Tentatively Identified Compound
TKN	Total Kjeldahl Nitrogen
TPH	Total Petroleum Hydrocarbon
TPU	Total Propagated Uncertainty
amu	atomic mass unit
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compounds
WP	Work Plan

5. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Concentration (C) Qualifiers:

  U — The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".

  B — The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers:

  E — The compound was quantitated above the calibration range.

  D — The concentration is based on a diluted sample analysis.

- Validation Qualifiers:

  J — The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  J+ — The result is an estimated quantity, but the result may be biased high.

  J- — The result is an estimated quantity, but the result may be biased low.

  J/UJ — as listed in exception tables J applies to detected data and UJ applies to non-detected data as reported by the laboratory.

  UJ — The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.

  NJ — The analysis indicated the presence of a compound for which there is presumptive evidence to make a tentative identification; the associated numerical value is an estimated concentration only.

  R — The sample results were rejected as unusable; the compound may or may not be present in the sample.

  S — Result is suspect. See DUSR for details.

References

1. United States Environmental Protection Agency (USEPA), 2020a. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-542-R-20-006. November 2020.

2. USEPA, 2020b. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-20-005. November 2020.

TABLE 1
SYSTEM PERFORMANCE SUMMARY
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SDG	Method	Basis	Sample ID	Lab ID	Analyte	Fraction	Reportable Result	Reported Result	Validated Result	Reason for Qualifier
L2307869	SW6010D	NA	SB-08 (0-0.5)	L2307869-01	Arsenic	N	Yes	1.96	1.96 J	DUP
L2307869	SW6010D	NA	SB-08 (0-0.5)	L2307869-01	Barium	N	Yes	46.3	46.3 J	DUP
L2307869	SW6010D	NA	SB-08 (0-0.5)	L2307869-01	Lead	N	Yes	7.58	7.58 J	DUP
L2307869	SW6010D	NA	SB-08 (0-0.5)	L2307869-01	Sodium	N	Yes	351	351 J	DUP
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Anthracene	N	No	42000	42000 R	EXE
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Benzo(a)anthracene	N	No	55000	55000 R	EXE
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Benzo(a)pyrene	N	No	56000	56000 R	EXE
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Benzo(b)fluoranthene	N	No	62000	62000 R	EXE
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Chrysene	N	No	47000	47000 R	EXE
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Fluoranthene	N	No	90000	90000 R	EXE
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Indeno(1,2,3-cd)pyrene	N	No	39000	39000 R	EXE
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Phenanthrene	N	No	100000	100000 R	EXE
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Pyrene	N	No	87000	87000 R	EXE
L2308181	SW8270E	NA	SB-02 (0-0.5)	L2308181-04	Benzo(b)fluoranthene	N	No	7800	7800 R	EXE
L2308181	SW8270E	NA	SB-02 (0-0.5)	L2308181-04	Fluoranthene	N	No	14000	14000 R	EXE
L2308181	SW8270E	NA	SB-02 (0-0.5)	L2308181-04	Phenanthrene	N	No	9800	9800 R	EXE
L2308181	SW8270E	NA	SB-02 (0-0.5)	L2308181-04	Pyrene	N	No	10000	10000 R	EXE
L2307700	SW8270E	NA	SB-13 (0-0.5)	L2307700-03	Fluoranthene	N	No	9100	9100 R	EXE
L2307700	SW8270E	NA	SB-13 (0-0.5)	L2307700-03	Pyrene	N	No	7700	7700 R	EXE
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	4,4'-DDT	N	No	342	342 R	EXE, SUR
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	2-Methylnaphthalene	N	Yes	4300	4300 J	FDP
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Acenaphthene	N	Yes	17000	17000 J	FDP
L2307700	SW8270E	NA	DUP-01-02132023	L2307700-17	Acenaphthylene	N	Yes	3700	3700 J	FDP
L2307700	SW6010D	NA	DUP-02-02132023	L2307700-18	Copper	N	Yes	13	13 J	FDP
L2307700	SW6010D	NA	DUP-02-02132023	L2307700-18	Lead	N	Yes	3.44 J	3.44 J	FDP
L2307700	SW6010D	NA	DUP-02-02132023	L2307700-18	Nickel	N	Yes	10.6	10.6 J	FDP
L2307700	SW8270E	NA	DUP-02-02132023	L2307700-18	Fluoranthene	N	Yes	U	UJ	FDP
L2307700	SW8270E	NA	DUP-02-02132023	L2307700-18	Pyrene	N	Yes	U	UJ	FDP
L2307700	SW6010D	NA	DUP-03-02132023	L2307700-19	Nickel	N	Yes	12.3	12.3 J	FDP
L2307700	SW8270E	NA	SB-14 (0-0.5)	L2307700-14	2-Methylnaphthalene	N	Yes	U	UJ	FDP
L2307700	SW8270E	NA	SB-14 (0-0.5)	L2307700-14	Acenaphthene	N	Yes	40 J	40 J	FDP
L2307700	SW8270E	NA	SB-14 (0-0.5)	L2307700-14	Acenaphthylene	N	Yes	38 J	38 J	FDP
L2307700	SW6010D	NA	SB-14 (12-14)	L2307700-16	Nickel	N	Yes	9.74	9.74 J	FDP
L2307700	SW6010D	NA	SB-14 (6-8)	L2307700-15	Copper	N	Yes	27.9	27.9 J	FDP
L2307700	SW6010D	NA	SB-14 (6-8)	L2307700-15	Lead	N	Yes	12	12 J	FDP
L2307700	SW6010D	NA	SB-14 (6-8)	L2307700-15	Nickel	N	Yes	7.79	7.79 J	FDP
L2307700	SW8270E	NA	SB-14 (6-8)	L2307700-15	Fluoranthene	N	Yes	230	230 J	FDP
L2307700	SW8270E	NA	SB-14 (6-8)	L2307700-15	Pyrene	N	Yes	240	240 J	FDP
L2307700	SW8260D	NA	DUP-01-02132023	L2307700-17	Acetone	N	Yes	13	13 J	LCS
L2307700	SW8260D	NA	FB-01-02132023	L2307700-51	1,1-Dichloroethene	N	Yes	U	UJ	LCS
L2307700	SW8260D	NA	FB-01-02132023	L2307700-51	Ethyl Ether	N	Yes	U	UJ	LCS
L2307700	SW8260D	NA	FB-01-02132023	L2307700-51	Trichlorofluoromethane (CFC-11)	N	Yes	U	UJ	LCS
L2307700	SW8270E	NA	FB-01-02132023	L2307700-51	Carbazole	N	Yes	U	UJ	LCS
L2308771	SW8270E	NA	FB-04-02172023	L2308771-03	4-Chloroaniline	N	Yes	U	UJ	LCS
L2308771	SW8270E	NA	FB-04-02172023	L2308771-03	Carbazole	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-01 (0-0.5)	L2307869-04	1,4-Dioxane	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-01 (0-0.5)	L2307869-04	4-Chloroaniline	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-01 (12-14)	L2307869-06	1,4-Dioxane	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-01 (12-14)	L2307869-06	4-Chloroaniline	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-01 (6-8)	L2307869-05	1,4-Dioxane	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-01 (6-8)	L2307869-05	4-Chloroaniline	N	Yes	U	UJ	LCS
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Acetone	N	Yes	12	12 J	LCS
L2308771	SW8260D	NA	SB-04-03 (6-8)	L2308771-02	Acetone	N	Yes	29	29 J	LCS
L2307700	SW8270E	NA	SB-05 (12-14)	L2307700-23	4-Chloroaniline	N	Yes	U	UJ	LCS
L2307700	SW8270E	NA	SB-05 (12-14)	L2307700-23	Hexachlorocyclopentadiene	N	Yes	U	UJ	LCS
L2307700	SW8270E	NA	SB-05 (6-8)	L2307700-22	4-Chloroaniline	N	Yes	U	UJ	LCS
L2307700	SW8270E	NA	SB-05 (6-8)	L2307700-22	Hexachlorocyclopentadiene	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-08 (0-0.5)	L2307869-01	1,4-Dioxane	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-08 (0-0.5)	L2307869-01	4-Chloroaniline	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-08 (12-14)	L2307869-03	1,4-Dioxane	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-08 (12-14)	L2307869-03	4-Chloroaniline	N	Yes	U	UJ	LCS
L2307869	SW8260D	NA	SB-08 (6-8)	L2307869-02	Acetone	N	Yes	8.7	8.7 J	LCS
L2307869	SW8270E	NA	SB-08 (6-8)	L2307869-02	1,4-Dioxane	N	Yes	U	UJ	LCS
L2307869	SW8270E	NA	SB-08 (6-8)	L2307869-02	4-Chloroaniline	N	Yes	U	UJ	LCS
L2307700	SW8270E	NA	SB-14 (0-0.5)	L2307700-14	4-Chloroaniline	N	Yes	U	UJ	LCS
L2307700	SW8270E	NA	SB-14 (0-0.5)	L2307700-14	Hexachlorocyclopentadiene	N	Yes	U	UJ	LCS
L2310326	SW8260D	NA	SB-15 (2-4)	L2310326-01	Chlorobromomethane	N	Yes	U	UJ	LCS
L2310326	SW8270E	NA	SB-15 (2-4)	L2310326-01	4-Chloroaniline	N	Yes	U	UJ	LCS
L2310326	SW8270E	NA	SB-15 (2-4)	L2310326-01	Benzoic acid	N	Yes	U	UJ	LCS
L2310326	SW8260D	NA	SB-16 (2-4)	L2310326-02	Chlorobromomethane	N	Yes	U	UJ	LCS
L2310326	SW8270E	NA	SB-16 (2-4)	L2310326-02	4-Chloroaniline	N	Yes	U	UJ	LCS
L2310326	SW8270E	NA	SB-16 (2-4)	L2310326-02	Benzoic acid	N	Yes	U	UJ	LCS
L2310326	SW8260D	NA	SB-17 (3-5)	L2310326-03	Chlorobromomethane	N	Yes	U	UJ	LCS
L2310326	SW8270E	NA	SB-17 (3-5)	L2310326-03	4-Chloroaniline	N	Yes	U	UJ	LCS
L2310326	SW8270E	NA	SB-17 (3-5)	L2310326-03	Benzoic acid	N	Yes	U	UJ	LCS
L2307700	SW8260D	NA	TB-02132023	L2307700-52	1,1-Dichloroethene	N	Yes	U	UJ	LCS
L2307700	SW8260D	NA	TB-02132023	L2307700-52	Ethyl Ether	N	Yes	U	UJ	LCS
L2307700	SW8260D	NA	TB-02132023	L2307700-52	Trichlorofluoromethane (CFC-11)	N	Yes	U	UJ	LCS
L2307700	SW6020B	NA	FB-01-02132023	L2307700-51	Thallium	T	Yes	0.00044 J	0.002 U	MBK
L2307700	SW8260D	NA	FB-01-02132023	L2307700-51	Acetone	N	Yes	2.2 J	5.0 U	MBK
L2307869	SW8270ESIM	NA	FB-02-02142023	L2307869-07	Benzo(a)anthracene	N	Yes	0.03 J	0.1 U	MBK
L2307869	SW8270ESIM	NA	FB-02-02142023	L2307869-07	Fluorene	N	Yes	0.02 J	0.1 U	MBK
L2307869	SW8270ESIM	NA	FB-02-02142023	L2307869-07	Pyrene	N	Yes	0.03 J	0.1 U	MBK
L2308771	SW6010D	NA	FB-04-02172023	L2308771-03	Iron	T	Yes	0.0385 J	0.05 U	MBK

TABLE 1
SYSTEM PERFORMANCE SUMMARY
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SDG	Method	Basis	Sample ID	Lab ID	Analyte	Fraction	Reportable Result	Reported Result	Validated Result	Reason for Qualifier
L2308181	SW8260D	NA	SB-02 (0-0.5)	L2308181-04	Acetone	N	Yes	11 J	12.0 U	MBK
L2308181	SW6010D	NA	SB-02 (12-14)	L2308181-06	Lead	N	Yes	3.52 J	4.34 U	MBK
L2308181	SW8260D	NA	SB-02 (12-14)	L2308181-06	Acetone	N	Yes	10	10.0 U	MBK
L2308181	SW8260D	NA	SB-03 (0-0.5)	L2308181-01	Acetone	N	Yes	5.1 J	10.0 U	MBK
L2308181	SW8260D	NA	SB-03 (0-0.5)	L2308181-01	Naphthalene	N	Yes	1.6 J	4.1 U	MBK
L2308181	SW8260D	NA	SB-03 (12-14)	L2308181-03	Naphthalene	N	Yes	1.5 J	3.7 U	MBK
L2308181	SW8260D	NA	SB-03 (6-8)	L2308181-02	Acetone	N	Yes	8.6 J	9.9 U	MBK
L2308181	SW8260D	NA	SB-03 (6-8)	L2308181-02	Naphthalene	N	Yes	2.1 J	4.0 U	MBK
L2307700	SW8260D	NA	SB-04 (0-0.5)	L2307700-06	Acetone	N	Yes	7.7 J	12.0 U	MBK
L2307700	SW8260D	NA	SB-04 (12-14)	L2307700-08	Acetone	N	Yes	5.4 J	8.4 U	MBK
L2308771	SW6010D	NA	SB-04-02 (0-0.5)	L2308771-01	Sodium	N	Yes	144 J	174.0 U	MBK
L2307700	SW8260D	NA	SB-05 (0-0.5)	L2307700-09	Acetone	N	Yes	5.7 J	10.0 U	MBK
L2308181	SW6010D	NA	SB-06 (0-0.5)	L2308181-10	Lead	N	Yes	3.51 J	4.13 U	MBK
L2308181	SW8260D	NA	SB-06 (0-0.5)	L2308181-10	Acetone	N	Yes	15	15.0 U	MBK
L2308181	SW6010D	NA	SB-06 (12-14)	L2308181-12	Lead	N	Yes	3.6 J	4.13 U	MBK
L2308181	SW6010D	NA	SB-06 (6-8)	L2308181-11	Lead	N	Yes	3.67 J	4.29 U	MBK
L2308181	SW8260D	NA	SB-06 (6-8)	L2308181-11	Acetone	N	Yes	4.6 J	8.5 U	MBK
L2307700	SW6010D	NA	SB-07 (12-14)	L2307700-29	Sodium	N	Yes	167 J	177.0 U	MBK
L2308181	SW6010D	NA	SB-09 (0-0.5)	L2308181-13	Lead	N	Yes	4.45	4.45 U	MBK
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	Acetone	N	Yes	4.8 J	7.8 U	MBK
L2308181	SW8260D	NA	SB-09 (12-14)	L2308181-15	Acetone	N	Yes	6.1 J	9.9 U	MBK
L2308181	SW6010D	NA	SB-09 (6-8)	L2308181-14	Lead	N	Yes	3.43 J	4.05 U	MBK
L2308181	SW8260D	NA	SB-09 (6-8)	L2308181-14	Acetone	N	Yes	9.1	9.1 U	MBK
L2307700	SW8260D	NA	SB-10 (0-0.5)	L2307700-11	Acetone	N	Yes	4.8 J	9.5 U	MBK
L2308181	SW8260D	NA	SB-11 (0-0.5)	L2308181-07	Acetone	N	Yes	18	18.0 U	MBK
L2308181	SW6010D	NA	SB-11 (12-14)	L2308181-09	Lead	N	Yes	3.4 J	4.14 U	MBK
L2308181	SW8260D	NA	SB-11 (6-8)	L2308181-08	Acetone	N	Yes	8.7 J	9.9 U	MBK
L2307700	SW8260D	NA	SB-12 (6-8)	L2307700-01	Acetone	N	Yes	9 J	9.7 U	MBK
L2307700	SW8260D	NA	SB-13 (0-0.5)	L2307700-03	Acetone	N	Yes	7.4 J	9.9 U	MBK
L2307700	SW8260D	NA	SB-13 (12-14)	L2307700-05	Acetone	N	Yes	7.3 J	8.4 U	MBK
L2307700	SW8260D	NA	SB-13 (6-8)	L2307700-04	Acetone	N	Yes	4.7 J	8.4 U	MBK
L2307700	SW8260D	NA	SB-14 (0-0.5)	L2307700-14	Acetone	N	Yes	5.9 J	9.7 U	MBK
L2308181	SW6010D	NA		WG1745134-1	Lead	N	Yes	0.402 J	2.0 U	MBK
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,1,2,2-Tetrachloroethane	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,2,3-Trichlorobenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,2,3-Trichloropropane	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,2,4,5-Tetramethylbenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,2,4-Trichlorobenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,2,4-Trimethylbenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,2-Dibromo-3-chloropropane (DBCP)	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,2-Dichlorobenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,3,5-Trimethylbenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,3-Dichlorobenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	1,4-Dichlorobenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	2-Phenylbutane (sec-Butylbenzene)	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Bromobenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Bromoform	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Chlorobenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Ethyl Ether	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Ethylbenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Hexachlorobutadiene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Isopropylbenzene (Cumene)	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Naphthalene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Styrene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Tetrachloroethene	N	Yes	1.1	1.1 J	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Trichlorofluoromethane (CFC-11)	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	Vinyl acetate	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	m,p-Xylenes	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	n-Butylbenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	n-Propylbenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	o-Xylene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	tert-Butylbenzene	N	Yes	U	UJ	MSD
L2308771	SW8260D	NA	SB-04-02 (0-0.5)	L2308771-01	trans-1,4-Dichloro-2-butene	N	Yes	U	UJ	MSD
L2308771	SW8270E	NA	SB-04-02 (0-0.5)	L2308771-01	Hexachlorocyclopentadiene	N	Yes	U	UJ	MSD
L2308771	SW7471B	NA	SB-04-03 (6-8)	L2308771-02	Mercury	N	Yes	2.98	2.98 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	2,4-Dinitrophenol	N	Yes	U	UJ	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Benzo(a)anthracene	N	Yes	1100	1100 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Benzo(a)pyrene	N	Yes	1300	1300 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Benzo(b)fluoranthene	N	Yes	1500	1500 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Benzo(g,h,i)perylene	N	Yes	790	790 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Benzo(k)fluoranthene	N	Yes	560	560 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Benzoic acid	N	Yes	U	UJ	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Chrysene	N	Yes	1100	1100 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Hexachlorocyclopentadiene	N	Yes	U	UJ	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Indeno(1,2,3-cd)pyrene	N	Yes	900	900 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Phenanthrene	N	Yes	1700	1700 J	MSD
L2308771	SW8270E	NA	SB-04-03 (6-8)	L2308771-02	Pyrene	N	Yes	2400	2400 J	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	1,1,2,2-Tetrachloroethane	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	1,2,3-Trichlorobenzene	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	1,2,4,5-Tetramethylbenzene	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	1,2,4-Trichlorobenzene	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	1,2,4-Trimethylbenzene	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	1,2-Dibromo-3-chloropropane (DBCP)	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	1,3,5-Trimethylbenzene	N	Yes	U	UJ	MSD

TABLE 1
SYSTEM PERFORMANCE SUMMARY
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SDG	Method	Basis	Sample ID	Lab ID	Analyte	Fraction	Reportable Result	Reported Result	Validated Result	Reason for Qualifier
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	2-Phenylbutane (sec-Butylbenzene)	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	Bromobenzene	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	Hexachlorobutadiene	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	Isopropylbenzene (Cumene)	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	Naphthalene	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	n-Butylbenzene	N	Yes	U	UJ	MSD
L2308181	SW8260D	NA	SB-09 (0-0.5)	L2308181-13	trans-1,4-Dichloro-2-butene	N	Yes	U	UJ	MSD
L2308181	SW8270E	NA	SB-09 (0-0.5)	L2308181-13	Benzoic acid	N	Yes	U	UJ	MSD
L2308181	SW8081B	NA	SB-02 (0-0.5)	L2308181-04	Heptachlor epoxide	N	Yes	U	UJ	RPD
L2308181	SW8081B	NA	SB-02 (12-14)	L2308181-06	gamma-Chlordane (trans)	N	Yes	U	UJ	RPD
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	Heptachlor epoxide	N	Yes	U	UJ	RPD
L2307700	SW8081B	NA	SB-13 (6-8)	L2307700-04	Heptachlor	N	Yes	U	UJ	RPD
L2307700	SW8081B	NA	SB-13 (6-8)	L2307700-04	alpha-Chlordane (cis)	N	Yes	7.32	7.32 J	RPD
L2308181	SW8081B	NA	SB-02 (0-0.5)	L2308181-04	Chlordane	N	Yes	46.3	46.3 J	RPD, SUR
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	Chlordane	N	Yes	55.3	55.3 J	RPD, SUR
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	alpha-Chlordane (cis)	N	Yes	14.1	14.1 J	RPD, SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	Chlordane	N	Yes	62.6	62.6 J	RPD, SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	Heptachlor	N	Yes	0.53 J	0.53 J	RPD, SUR
L2308181	SW8081B	NA	SB-02 (0-0.5)	L2308181-04	4,4'-DDD	N	Yes	4.9	4.9 J+	SUR
L2308181	SW8081B	NA	SB-02 (0-0.5)	L2308181-04	4,4'-DDE	N	Yes	18.8	18.8 J+	SUR
L2308181	SW8081B	NA	SB-02 (0-0.5)	L2308181-04	4,4'-DDT	N	Yes	100	100 J+	SUR
L2308181	SW8081B	NA	SB-02 (0-0.5)	L2308181-04	Dieldrin	N	Yes	8.02	8.02 J+	SUR
L2308181	SW8081B	NA	SB-02 (0-0.5)	L2308181-04	alpha-Chlordane (cis)	N	Yes	14.9	14.9 J+	SUR
L2308181	SW8081B	NA	SB-02 (0-0.5)	L2308181-04	gamma-Chlordane (trans)	N	Yes	11.8	11.8 J+	SUR
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	4,4'-DDD	N	Yes	8.76	8.76 J+	SUR
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	4,4'-DDE	N	Yes	65.3	65.3 J+	SUR
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	4,4'-DDT	N	Yes	247	247 J+	SUR
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	Dieldrin	N	Yes	7.59	7.59 J+	SUR
L2308181	SW8081B	NA	SB-02 (6-8)	L2308181-05	gamma-Chlordane (trans)	N	Yes	16.4	16.4 J+	SUR
L2308771	SW8270E	NA	SB-04-02 (0-0.5)	L2308771-01	Benzoic acid	N	Yes	U	UJ	SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	4,4'-DDD	N	Yes	4.97	4.97 J+	SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	4,4'-DDE	N	Yes	45	45 J+	SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	4,4'-DDT	N	Yes	217	217 J+	SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	Dieldrin	N	Yes	24.2	24.2 J+	SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	Heptachlor epoxide	N	Yes	3.5	3.5 J+	SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	Methoxychlor	N	Yes	27.2	27.2 J+	SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	alpha-Chlordane (cis)	N	Yes	21.5	21.5 J+	SUR
L2307700	SW8081B	NA	SB-13 (0-0.5)	L2307700-03	gamma-Chlordane (trans)	N	Yes	22.7	22.7 J+	SUR

Notes:

DUP = Laboratory duplicate relative percent difference exceeds the specified limits.
EXE = Result exceeds the calibration range.
FDP = Field duplicate qualifier due to an exceedance of the specified limits.
LCS = Laboratory control/laboratory control spike duplicate percent recoveries or relative percent difference were outside the specified limits.
MBK = Method blank contamination.
MSD = Matrix spike/matrix spike duplicate percent recoveries or relative percent difference were outside the specified limits.
RPD = Pesticides and PCB confirmation column RPD Exceeded; or MSD/LCS RPD exceedance.
SUR = Surrogate percent recovery outside the specified limits.
J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.
J+ = The result is an estimated quantity, but the result may be biased high.
R = The sample results were rejected as unusable; the compound may or may not be present in the sample.
U = The compound was analyzed for but not detected.
UJ = The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.

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Data Usability Summary Report

Project Name: 91 Bruckner

Project Description: Soil Samples

Sample Date(s): 13 through 17 February 2023

Analytical Laboratory: Alpha Analytical – Westborough, MA

Validation Performed by: Oscar Cervantes

Validation Reviewed by: Katherine Miller

Validation Date: 17 March 2023

Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- Department of Defense (DoD) Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, Table B-15.
- DoD Data Validation Guidelines Module 3: Data Validation Procedure for Per- and Polyfluoroalkyl Substances (PFAS) by QSM Table B-15.
- The QSM was used as a reference only. These samples were analyzed for PFAS using a laboratory-specific method and were not analyzed in accordance with DoD protocol.

Data reported in this sampling event were reported to the laboratory reporting limit (RL). Results found between the method detection limit (MDL) and RL are flagged J as estimated.

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOP). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQO) for the project and therefore usable; any exceptions are noted in the following pages.

1. Sample Delivery Group Number L2307700, L2307869, L2308181, and L2308771

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG numbers L2307700, L2307869, L2308181, and L2308771. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol.

Samples were also received appropriately, identified correctly, and analyzed according to the COC. Issues noted with sample management are listed below:

- A sample identified as FB-01-02112023 was listed on the chain of custody, but not received for the analysis of PFAS.
- A sample identified as FB-04-02172023 was listed on the chain of custody, but not received for the analysis of PFAS.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
SB-12 (6-8)	N	L2307700-01	02/13/2023	SO	A
SB-12 (12-14)	N	L2307700-02	02/13/2023	SO	A
SB-13 (0-0.5)	N	L2307700-03	02/13/2023	SO	A
SB-13 (6-8)	N	L2307700-04	02/13/2023	SO	A
SB-13 (12-14)	N	L2307700-05	02/13/2023	SO	A
SB-04 (0-0.5)	N	L2307700-06	02/13/2023	SO	A
SB-04 (6-8)	N	L2307700-07	02/13/2023	SO	A
SB-04 (12-14)	N	L2307700-08	02/13/2023	SO	A
SB-05 (0-0.5)	N	L2307700-09	02/13/2023	SO	A
SB-10 (0-0.5)	N	L2307700-11	02/13/2023	SO	A
SB-10 (6-8)	N	L2307700-12	02/13/2023	SO	A
SB-10 (12-14)	N	L2307700-13	02/13/2023	SO	A
SB-14 (0-0.5)	N	L2307700-14	02/13/2023	SO	A
SB-14 (6-8)	N	L2307700-15	02/13/2023	SO	A
SB-14 (12-14)	N	L2307700-16	02/13/2023	SO	A
DUP-01-02132023	FD	L2307700-17	02/13/2023	SO	A
DUP-02-02132023	FD	L2307700-18	02/13/2023	SO	A
DUP-03-02132023	FD	L2307700-19	02/13/2023	SO	A
SB-12 (0-0.5)	N	L2307700-20	02/13/2023	SO	A
SB-05 (6-8)	N	L2307700-22	02/13/2023	SO	A
SB-05 (12-14)	N	L2307700-23	02/13/2023	SO	A
SB-07 (0-0.5)	N	L2307700-27	02/13/2023	SO	A

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
SB-07 (6-8)	N	L2307700-28	02/13/2023	SO	A
SB-07 (12-14)	N	L2307700-29	02/13/2023	SO	A
SB-08 (0-0.5)	N	L2307869-01	02/14/2023	SO	A
SB-08 (6-8)	N	L2307869-02	02/14/2023	SO	A
SB-08 (12-14)	N	L2307869-03	02/14/2023	SO	A
SB-01 (0-0.5)	N	L2307869-04	02/14/2023	SO	A
SB-01 (6-8)	N	L2307869-05	02/14/2023	SO	A
SB-01 (12-14)	N	L2307869-06	02/14/2023	SO	A
FB-02-02142023	FB	L2307869-07	02/14/2023	WQ	A
SB-03 (0-0.5)	N	L2308181-01	02/15/2023	SO	A
SB-03 (6-8)	N	L2308181-02	02/15/2023	SO	A
SB-03 (12-14)	N	L2308181-03	02/15/2023	SO	A
SB-02 (0-0.5)	N	L2308181-04	02/15/2023	SO	A
SB-02 (6-8)	N	L2308181-05	02/15/2023	SO	A
SB-02 (12-14)	N	L2308181-06	02/15/2023	SO	A
SB-11 (0-0.5)	N	L2308181-07	02/15/2023	SO	A
SB-11 (6-8)	N	L2308181-08	02/15/2023	SO	A
SB-11 (12-14)	N	L2308181-09	02/15/2023	SO	A
SB-06 (0-0.5)	N	L2308181-10	02/15/2023	SO	A
SB-06 (6-8)	N	L2308181-11	02/15/2023	SO	A
SB-06 (12-14)	N	L2308181-12	02/15/2023	SO	A
SB-09 (0-0.5)	N	L2308181-13	02/15/2023	SO	A
SB-09 (6-8)	N	L2308181-14	02/15/2023	SO	A
SB-09 (12-14)	N	L2308181-15	02/15/2023	SO	A
FB-03-02152023	TB	L2308181-17	02/15/2023	WQ	A
SB-04-02 (0-0.5)	N	L2308771-01	02/17/2023	SO	A
SB-04-03 (6-8)	N	L2308771-02	02/17/2023	SO	A

Method Holding Times			
A.	EPA1633	Per- and Polyfluoroalkyl Substances (PFAS)	90 days

1.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol.

1.3 REPORTING LIMITS AND SAMPLE DILUTIONS

No sample dilutions were performed for the analysis of the samples in this report.

1.4 LABORATORY CONTROL SAMPLES

Refer to section E 1.3. Compounds associated with the laboratory control samples/laboratory control sample duplicates (LCS/LCSD) analyses associated with client samples exhibited recoveries and relative percent differences (RPDs) within the specified limits with the following exceptions:

SDG #	Sample Type	Method	Batch ID	Analyte	%R/RPD	Qualifier	Affected Samples
L2308771	LCS	E1633	WG1750815-2	Perfluorononanoic acid (PFNA)	152%	J/None	None, samples are ND
L2307700	LCS	E1633	WG1749002-2	Perfluorododecanoic acid (PFDOA)	162%	J/None	None, samples are ND
L2307700	LCS	E1633	WG1749002-2	1h,1h,2h,2h-perfluorodecanesulfonic acid (8:2FTS)	160%	J/None	None, samples are ND
L2307869	LCS	E1633	WG1749002-2	1h,1h,2h,2h-perfluorodecanesulfonic acid (8:2FTS)	160%	J/None	None, samples are ND
L2307869	LCS	E1633	WG1749002-2	Perfluorododecanoic acid (PFDOA)	162%	J/None	None, samples are ND
L2307869	LCS	E1633	WG1749002-2	Nonafluoro-3,6-dioxeheptanoic acid (NFDHA)	162%	J/None	None, samples are ND
L2308181	LCS	E1633	WG1749417-2	Perfluorododecanoic acid (PFDOA)	152%	J/None	None, samples are ND

1.5 MATRIX SPIKE SAMPLES

Refer to section E 1.4. The sample(s) below were used for matrix spike/matrix spike duplicate (MS/MSD):

Lab Sample Number	Matrix Spike/Matrix Spike Duplicate Sample Client ID	Method(s)
L2308771-01	SB-04-02 (0-0.5’)	E1633
L2308771-02	SB-04-03 (6-8’)	E1633
L2307700-02	SB-12 (12-14’)	E1633
L2308181-13	SB-09 (0-0.5’)	E1633

The MS/MSD recoveries and the relative percent difference (RPD) between the MS and MSD results were within the specified limits with the following exceptions:

Sample Type	Method	Parent Sample	Analyte	%R/RPD	Qualifier	Affected Samples
MS/MSD	E1633	SB-04-03 (6-8)	Perfluorotridecanoic acid (PFTRDA)	RPD = 38	J/None	None, samples are ND
MS/MSD	E1633	SB-09 (0-0.5')	Perfluorononanoic acid (PFNA)	154%	J/None	None, samples are ND

1.6 BLANK SAMPLE ANALYSIS

Refer to section E 1.5. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
Method Blank	WG1749002-1	Perfluorooctanesulfonic acid (PFOS)	0.104 J	RL U	L2307700-29
	WG1749002-1	PFOA/PFOS, Total	0.104 J	RL U	L2307700-29
	WG1749002-1	Perfluorooctanesulfonic acid (PFOS)	0.104 J	RL U	L2307869-05
	WG1749002-1	PFOA/PFOS, Total	0.104 J	RL U	L2307869-05
	WG1749002-1	Perfluorooctanesulfonic acid (PFOS)	0.104 J	J+	L2307869-04
	WG1749002-1	PFOA/PFOS, Total	0.104 J	J+	L2307869-04

The analysis of the blank samples for field quality control was free of target compounds.

1.7 DUPLICATE SAMPLE ANALYSIS

Refer to section E 1.6. No client samples were used for laboratory duplicate analysis.

The following sample(s) were used for field duplicate analysis. RPDs were all below 50 percent for soil/sediment (or the absolute difference rule was satisfied if detects were less than 5 times the RL).

Primary Sample ID	Duplicate Sample ID	Method(s)
SB-14 (0-0.5)	DUP-01-02132023	E1633
SB-14 (6-8)	DUP-02-02132023	E1633
SB-14 (12-14)	DUP-03-02132023	E1633

1.8 PFAS SAMPLE PREPARATION

Refer to section E 1.14. The laboratory's SOP was reviewed, and the reviewer confirmed it is the laboratory's procedure to use solid phase extraction (SPE) for sample preparation.

1.9 PFAS IDENTIFICATION

Refer to section E 1.15. Ion ratios were reviewed and were within the limits of 50 to 150 percent were within the laboratory specified limits with the following exceptions:

Sample ID	Analyte	Qualifier	Affected Samples
L2308181-02	Perfluorobutanesulfonic acid (PFBS)	J	L2308181-02
L2308181-06	Perfluoroundecanoic acid (PFUnDA)	J	L2308181-06
L2308181-07	Perfluorobutanesulfonic acid (PFBS)	J	L2308181-07
L2308181-08	Perfluorobutanesulfonic acid (PFBS)	J	L2308181-08
L2307700-11	Perfluorooctanesulfonic acid (PFOS)	J	L2307700-11
L2308181-08	Perfluorobutanesulfonic acid (PFBS)	J	L2308181-08
L2307700-03	Perfluoroheptanesulfonic acid (PFHpS)	J	L2307700-03

1.10 EXTRACTION INTERNAL STANDARDS

Refer to section E 1.16. Recoveries were reviewed and found to be within the limits of 50 to 150 percent of the initial calibration (ICAL) midpoint standard/ initial continuing calibration verification (CCV).

1.11 INITIAL CALIBRATION

Refer to section E 1.20. For PFAS analysis, the minimum number of standards was used for initial calibration. The Percent Relative Standard Deviation (%RSD) for quadratic fit calibrations were within the specified limits, the R^2 values for linear fit calibrations were within specific limits, and standard recoveries were within the specified limits, with the following exceptions:

1.12 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Refer to section E 1.21. Percent Recovery (%R) were reviewed for PFAS analysis and were found to be within limits.

1.13 SAMPLE RESULT VERIFICATION

A portion of the sample result(s) were tracked through the relevant sample preparation steps, raw data outputs, transcriptions, conversions and/or calculations and have been confirmed to be accurate and representative of the sample conditions.

1.14 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable as no data was rejected. The qualifiers applied to this data set are summarized in the table below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
L2307700-29	Perfluorooctanesulfonic acid (PFOS)	0.08 J	RL U	Method blank detection
L2307700-29	PFOA/PFOS, Total	0.08 J	RL U	Method blank detection
L2307869-05	Perfluorooctanesulfonic acid (PFOS)	0.096 J	RL U	Method blank detection
L2307869-05	PFOA/PFOS, Total	0.096 J	RL U	Method blank detection
L2307869-04	Perfluorooctanesulfonic acid (PFOS)	0.319	J+	Method blank detection
L2307869-04	PFOA/PFOS, Total	0.614	J+	Method blank detection
L2308181-02	Perfluorobutanesulfonic acid (PFBS)	0.055 JF	0.055 J	Ion ratio exceedance
L2308181-06	Perfluoroundecanoic acid (PFUnDA)	0.055 JF	0.055 J	Ion ratio exceedance
L2308181-07	Perfluorobutanesulfonic acid (PFBS)	0.053 JF	0.053 J	Ion ratio exceedance
L2308181-08	Perfluorobutanesulfonic acid (PFBS)	0.061 JF	0.061 J	Ion ratio exceedance
L2307700-11	Perfluorooctanesulfonic acid (PFOS)	0.104 JF	0.104 J	Ion ratio exceedance
L2308181-08	Perfluorobutanesulfonic acid (PFBS)	0.517 F	0.517 J	Ion ratio exceedance
L2307700-03	Perfluoroheptanesulfonic acid (PFHpS)	0.221 F	0.221 J	Ion ratio exceedance

2. Precision and Accuracy [for SDG(s) above]

Refer to section E 1.7. Some measurement of analytical accuracy and precision was reported for each method with the site samples.

3. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.4 Matrix Spike Samples
  - Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies.
  - For inorganic methods, when a matrix spike recovery falls outside of the control limits and the sample result is less than four times the spike added, a post digestion spike (PDS) is performed.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
  - Analysis of PFAS compliant with QSM 5.3 Table B-15 requires instrument blanks that are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess contamination that could occur in the LC/MS/MS instrument.
  - Field blanks are prepared to identify contamination that may have been introduced during field activity. Equipment blanks are prepared to identify contamination that may have been introduced while decontaminating sampling equipment. Trip blanks are prepared when volatile analysis is requested to identify contamination that may have been introduced during transport.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
  - The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The relative percent difference (RPD) or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.

- Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.

- E 1.14 PFAS Sample Preparation
  - Analysis of PFAS requires specific sample preparation. Aqueous samples must be prepared using Solid Phase Extraction (SPE), unless samples are known to contain high PFAS concentrations or the samples are injected directly into the LC/MS/MS instrument. Samples with greater than 1 percent solids may require centrifugation prior to SPE. The entire sample plus bottle rinsate must be extracted using SPE. If high PFAS concentrations are known, the samples may alternately be prepared using serial dilution performed in duplicate. If prepared by serial dilution, there must be documented project approval for this deviation.
- E 1.15 PFAS Identification
  - Identification of PFAS requires dual confirmation. The chemical derivation of the ion transitions must be documented. A minimum of two ion transitions per analyte are required (except for PFBA and PFPeA). Ratios of the quantitation ion to the confirmation ion should be calculated for samples and be within 50 to 150 percent of the ratios of the quantitation ion to the confirmation ion for standards.
  - Identification of PFAS also requires the proper assessment of branched and linear peaks. Standards for both isomers are not currently available for every PFAS compound, resulting in the common error of quantifying the area of only the branched or the linear isomers, which results in erroneous concentrations.
- E 1.16 Extraction Internal Standards
  - Analysis of PFAS by isotope dilution includes the use of extracted internal standards, which are stable isotope analogs of the PFAS compounds of interest added to each sample prior to extraction of the sample matrix. Matrix interferences that affect the quantification of the internal standard will affect the calculated target compound concentrations.
- E 1.20 Initial Calibration
  - Organic methods require an initial calibration to ensure the instrument is capable of producing acceptable qualitative and quantitative data. Standards of varying concentrations are run to create a calibration curve, which is then used to ensure the validity of compound quantitation.
  - The curve must have a correlation coefficient of greater than or equal to 0.995 and the calculated percent differences (%D) for all non-zero standards must be within ±30 percent of the true value.
  - For PFAS analysis in compliance with NYSDEC Part 375, the initial calibration should contain a minimum of five standards for linear fit and six standards for quadratic fit. The relative standard deviation (RSD) for a quadratic fit calibration should be less than 20 percent and the R^2 value should be greater than 0.990 for a linear fit calibration. The low-level calibration standards should be within 50 to 150 percent of the true value and the mid-level calibration standards should be within 70 to 130 percent of the true value.

- E 1.21 Initial and Continuing Calibration Verification
  - Organic methods require an additional ICV and CCV to ensure that the instrument continues to meet the sensitivity and linearity criteria to produce acceptable qualitative and quantitative data throughout each analytical sequence. CCVs must be run at the beginning and end of every 12-hour period of operation.
  - For PFAS analysis in compliance with NYSDEC Part 375, the ICV should be at the same concentration as the mid-level standard of the calibration curve. %R for ICV and CCV must be within 70 to 130 percent.

4. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB Equipment Blank Sample
  - FB Field Blank Sample
  - FD Field Duplicate Sample
  - N Primary Sample
  - TB Trip Blank Sample
- Units:
  - µg/kg microgram per kilogram
  - µg/L microgram per liter
  - µg/m^3 microgram per cubic meter
  - mg/kg milligram per kilogram
  - mg/L milligram per liter
  - ppb v/v parts per billion volume/volume
  - pCi/L picocuries per liter
  - pg/g picograms per gram
- Matrices:
  - AA Ambient Air
  - GS Soil Gas
  - GW/WG Groundwater
  - QW Water Quality
  - IA Indoor Air
  - SE Sediment
  - SO Soil
  - SSV Sub-slab Vapor
  - WQ Water Quality control matrix
  - WS Surface Water
- Table Footnotes:
  - NA Not applicable
  - ND Non-detect
  - NR Not reported
- Common Symbols:
  - % percent
  - < less than
  - ≤ less than or equal to
  - > greater than
  - ≥ greater than or equal to
  - = equal
  - °C degrees Celsius
  - ± plus or minus
  - ~ approximately
  - x times (multiplier)

5. Abbreviations

%D	Percent Difference
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation
%v/v	Percent volume by volume
µg/L	micrograms per liter
2s	2 sigma
4,4-DDT	4 4-dichlorodiphenyltrichloroethane
Abs Diff	Absolute Difference
amu	atomic mass unit
BPJ	Best Professional Judgement
BS	Blank Spike
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CCVL	Continuing Calibration Verification Low
COC	Chain of Custody
COM	Combined Isotope Calculation
Cr (VI)	Hexavalent Chromium
CRI	Collision Reaction Interface
DoD	Department of Defense
DQO	data quality objective
DUSR	Data Usability Summary Report
EMPC	Estimated Maximum Possible Concentration
FBK	Field Blank Contamination
FDP	Field Duplicate
GC	Gas Chromatograph
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
H2	Hydrogen gas
HCl	Hydrochloric Acid
ICAL	Initial Calibration
ICB	Initial Calibration Blank
ICP/MS	Inductively Coupled Plasma/ Mass Spectrometry
ICV	Initial Calibration Verification
ICVL	Initial Calibration Verification Low
IPA	Isopropyl Alcohol
LC	Laboratory Control
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MBK	Method Blank Contamination
MDC	Minimum Detectable Concentration
MDL	Laboratory Method Detection Limit
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	not applicable
ND	Non-Detect
NFG	National Functional Guidelines
NH_3	Ammonia
NYSDEC	New York State Department of Environmental Conservation
PAH	polycyclic aromatic hydrocarbon
PCB	Polychlorinated Biphenyl
PDS	Post Digestion Spike
PEM	Performance Evaluation Mixture
PFAS	Per- and Polyfluoroalkyl Substances
PFBA	Perfluorbutanoic Acid
PFD	Perfluorodecalin
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane sulfonate
PFPeA	Perfluoropentanoic Acid
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
R^2	R-squared value
Ra-226	Radium-226
Ra-228	Radium-228
RESC	Resolution Check Measure
RL	Laboratory Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factors
RT	Retention Time
SAP	sampling analysis plan
SDG	Sample Delivery Group
SIM	Selected ion monitoring
SOP	Laboratory Standard Operating Procedures
SPE	Solid Phase Extraction
SVOC	Semi-Volatile Organic Compounds
TIC	Tentatively Identified Compound
TKN	Total Kjeldahl Nitrogen
TPH	Total Petroleum Hydrocarbon
TPU	Total Propagated Uncertainty
amu	atomic mass unit
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compounds
WP	Work Plan

6. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Concentration (C) Qualifiers:
  - U   The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or “ND”.
  - B   The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers:
  - E   The compound was quantitated above the calibration range.
  - D   The concentration is based on a diluted sample analysis.
- Validation Qualifiers:
  - J   The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - J+   The result is an estimated quantity, but the result may be biased high.
  - J-   The result is an estimated quantity, but the result may be biased low.
  - J/UJ   as listed in exception tables J applies to detected data and UJ applies to non-detected data as reported by the laboratory.
  - UJ   The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.
  - NJ   The analysis indicated the presence of a compound for which there is presumptive evidence to make a tentative identification; the associated numerical value is an estimated concentration only.
  - R   The sample results were rejected as unusable; the compound may or may not be present in the sample.
  - S   Result is suspect. See DUSR for details.

References

1. United Stated Department of Defense, 2019. Quality Systems Manual (QSM) for Environmental Laboratories, Version 5.3, Table B-15: Per- and Polyfluoroalkyl Substances (PFAS) Using Liquid Chromatography Tandem Mass Spectrometry (LC/MS/MS) With Isotope Dilution or Internal Standard Quantification in Matrices Other Than Drinking Water. 2019.
2. United States Department of Defense and Environmental Data Quality Workgroup, 2020. Data Validation Guidelines Module 3: Data Validation Procedure for Per- and Polyfluoroalkyl Substances Analysis by QSM Table B-15. May 2020.
3. New York State Department of Environmental Conservation (NYSDEC), 2021. Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances Under NYSDEC's Part 375 Remedial Programs. January 2021.

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Data Usability Summary Report

Project Name: 91 Bruckner

Project Description: Groundwater Samples

Sample Date(s): 24 and 27 February 2023

Analytical Laboratory: Alpha Analytical – Westborough, MA

Validation Performed by: Oscar Cervantes

Validation Reviewed by: Katherine Miller

Validation Date: 24 March 2023

Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

1. **Sample Delivery Group Numbers L2309998, L2310327, and L2310334**
2. **Explanations**
3. **Glossary**
4. **Abbreviations**
5. **Qualifiers**

References

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- National Functional Guidelines (NFG) for Inorganic Data Review.
- National Functional Guidelines (NFG) for Organic Data Review.
- Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under New York State Department of Environmental Conservation’s (NYSDEC’s) Part 375 Remedial Programs.
- Data in this report has been reviewed against the most recent NFG.

Data reported in this sampling event were reported to the laboratory reporting limit (RL). Results found between the method detection limit (MDL) and RL are flagged J as estimated.

Sample data were qualified in accordance with the laboratory’s standard operating procedures (SOP). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQO) for the project and therefore usable; any exceptions are noted in the following pages.

1. Sample Delivery Group Numbers L2309998, L2310327, and L2310334

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG numbers L2309998, L2310327, and L2310334. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol.

Samples were also received appropriately, identified correctly, and analyzed according to the COC. Issues noted with sample management are listed below:

- Custody seals were not used on the sample cooler(s).
- The sample date's year and time is missing from the COC for the Trip Blank sample in SDG L2310334.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
MW-01-20230224	N	L2309998-01	02/24/2023	WG	A, B, C, D, E, F, G, H
TB-05-02242023	TB	L2309998-02	02/24/2023	WQ	B
MW-02-20230227	N	L2310327-01	02/27/2023	WG	A, B, C, D, E, F, G, H
MW-03-20230227	N	L2310327-02	02/27/2023	WG	A, B, C, D, E, F, G, H
MW-06-20230227	N	L2310327-03	02/27/2023	WG	A, B, C, D, E, F, G, H
MW-08-20230227	N	L2310327-04	02/27/2023	WG	A, B, C, D, E, F, G, H
MW-11-20230227	N	L2310327-05	02/27/2023	WG	A, B, C, D, E, F, G, H
DUP-01-02272023	FD	L2310327-06	02/27/2023	WG	A, B, C, D, E, F, G, H
FB-05-02272023	FB	L2310327-07	02/27/2023	WQ	A, B, C, D, E, F, G, H
FB-04-02272023	FB	L2310334-01	02/27/2023	WQ	H

Method Holding Times			
A.	SW6020B	Metals	180 days for liquid, preserved
B.	SW8260D	Volatile Organic Compounds (VOCs)	14 days for liquid, preserved 7 days for liquid unpreserved
C.	SW8270E	Semivolatile Organic Compounds (SVOCs)	7 days extraction / 40 days analysis for liquid, unpreserved
D.	SW8270ESIM	Polycyclic Aromatic Hydrocarbons (PAHs)	7 days extraction / 40 days analysis for liquid, unpreserved
E.	SW7470A	Mercury (in Liquids)	28 days extraction / 48 hours analysis for liquid, preserved
F.	SW8081B	Organochlorine Pesticides	14 days extraction / 40 days analysis for liquid, unpreserved
G.	SW8082A	polychlorinated biphenyls (PCBs)	14 days extraction / 40 days analysis for liquid, unpreserved
H.	E1633	E1633	14 days extraction / 28 days analysis

1.2 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol.

1.3 REPORTING LIMITS AND SAMPLE DILUTIONS

All sample dilutions were reviewed and found to be justified. Dilution of the project samples were required to bring calibration of target analytes within calibration range, matrix interference, foaming at the time of purging, or abundance of non-target analytes.

1.4 SURROGATE RECOVERY COMPLIANCE

Refer to section E 1.2. The percent recovery (%R) for each surrogate compound added to each project sample were determined to be within the laboratory specified quality control (QC) limits, with the following exceptions:

Method	Sample ID	Lab ID	Surrogate	Dilution	%R	Qualification
8270E	MW-06	L2310327-03	2-Fluorophenol	1x	18%	J-/UJ target compounds*

** Compounds targeted by 2-Fluorophenol: benzyl alcohol, 2,4-dimethylphenol, 1,4-dichlorobenzene, phenol, bis(2-chloroethyl)ether, bis(2-chloroethoxy)methane, 3&4-methylphenol, 1,3-dichlorobenzene, n-nitrosodi-n-propylamine, isophorone, 2-nitrophenol, 2-methylphenol, 1,2-dichlorobenzene, 2-chlorophenol, acetophenone*

1.5 LABORATORY CONTROL SAMPLES

Refer to section E 1.3. Compounds associated with the laboratory control samples/laboratory control sample duplicates (LCS/LCSD) analyses associated with client samples exhibited recoveries and relative percent differences (RPDs) within the specified limits with the following exceptions:

SDG #	Sample Type	Method	Batch ID	Analyte	%R/RPD	Qualifier	Affected Samples
L2309998	LCS/LCSD	8270E	WG1748727-2/3	3,3’-Dichlorobenzidine	57%/32%	J/UJ	L2309998-01
L2309998	LCS/LCSD	8270E	WG1748727-2/3	2,4-Dinitrophenol	94%/141%	J/None	None, samples are ND
L2309998	LCS/LCSD	8270E	WG1748727-2/3	Pentachlorophenol	82%/110%	J/None	None, samples are ND
L2309998	LCS/LCSD	8270E	WG1748727-2/3	Benzoic acid	RPD = 68	J/None	None, samples are ND
L2309998	LCS/LCSD	8270ESIM	WG1748728-2/3	Pentachlorophenol	108%/172%	J/None	None, samples are ND

SDG #	Sample Type	Method	Batch ID	Analyte	%R/RPD	Qualifier	Affected Samples
L2310327	LCS/LCSD	8270E	WG1749680-2/3	Bis(2-chloroisopropyl)ether	34%/35%	NA	Analyte not reported in site samples
L2310327	LCS/LCSD	8270E	WG1749680-2/3	4-Chloroaniline	36%/40%	J/UJ	L2310327-01-07
L2310327	LCS/LCSD	8082A	WG1749245-2/3	All analytes	RPD > 25	J/None	None, samples are ND

1.6 MATRIX SPIKE SAMPLES

Refer to section E 1.4. The sample(s) below were used for matrix spike/matrix spike duplicate (MS/MSD):

Lab Sample Number	Matrix Spike/Matrix Spike Duplicate Sample Client ID	Method(s)
L2309998-01	MW-01-20230224	7470A
L2310327-02	MW-03-20230227	8270E, E1633, 6020D, 8082A

The MS/MSD recoveries and the RPD between the MS and MSD results were within the specified limits with the following exceptions:

Sample Type	Method	Parent Sample	Analyte	%R/RPD	Qualifier	Affected Samples
MS/MSD	8270E	MW-03	3,3'-dichlorobenzidine	0%/0%	J/R	L2310327-02
MS/MSD	8270E	MW-03	Bis(2-chloroisopropyl)ether	36%/38%	NA	Analyte not reported in site samples
MS/MSD	8270E	MW-03	4-Chloroaniline	23%/32%	J/UJ	L2310327-02
MS/MSD	8270E	MW-03	3-Nitroaniline	29%/18%	J/UJ	L2310327-02
MS/MSD	8270E	MW-03	4-Nitroaniline	33%/25%	J/UJ	L2310327-02
MSD	E1633	MW-03	Perfluorohexanoic acid (PFHxA)	5%	NA	None, native sample > 4x the spike added
MSD	6020D	MW-03	Aluminum, total	126%	NA	None, post-digestion spike within acceptance criteria
MS/MSD	6020D	MW-03	Calcium, total	280%/200%	NA	None, native sample > 4x the spike added

Sample Type	Method	Parent Sample	Analyte	%R/RPD	Qualifier	Affected Samples
MSD	6020D	MW-03	Iron, total	146%	NA	None, native sample > 4x the spike added
MSD	6020D	MW-03	Magnesium, total	130%	NA	None, native sample > 4x the spike added
MS/MSD	6020D	MW-03	Sodium, total	0%/0%	NA	None, native sample > 4x the spike added
MS/MSD	6020D	MW-03	Magnesium, dissolved	240%/160%	NA	None, native sample > 4x the spike added
MS/MSD	6020D	MW-03	Sodium, dissolved	160%/130%	NA	None, native sample > 4x the spike added
MS/MSD	8260D	MW-03	Naphthalene	RPD = 26	J/None	None, samples are ND

1.7 BLANK SAMPLE ANALYSIS

Refer to section E 1.5. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred with the following exceptions:

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
Method Blank	WG1748728	Benzo(a)anthracene	0.02 J	RL U	L2309998-01
Method Blank	WG1748728	Benzo(b)fluoranthene	0.01 J	RL U	L2309998-01
Method Blank	WG1748728	Benzo(k)fluoranthene	0.01 J	RL U	L2309998-01
Method Blank	WG1748728	Chrysene	0.02 J	RL U	L2309998-01
Method Blank	WG1748728	Pyrene	0.02 J	RL U	L2309998-01
Method Blank	WG1748728	Pentachlorophenol	0.72 J	NA	None, samples are ND
Method Blank	WG1749641-1	Manganese, dissolved	0.00099 J	NA	None, samples > 10 blank
Method Blank	WG1749641-1	Thallium, dissolved	0.00018 J	RL U	L2309998-01
Method Blank	WG1749814-1	Thallium, total	0.00014	RL U	L2310327-02
Method Blank	WG1749819-1	Aluminum, dissolved	0.00392	RL U	L2310327-01-04
Method Blank	WG1749819-1	Aluminum, dissolved	0.00392	J+	L2310327-05

Blank Type	Batch ID	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
Method Blank	WG1749819-1	Aluminum, dissolved	0.00392	Result U	L2310327-06
Method Blank	WG1749819-1	Thallium, dissolved	0.00057	RL U	L2310327-01, 03, 04, 07

The analysis of the blank samples for field quality control was free of target compounds, with the following exceptions:

Blank Type	Date of Blank	Analyte Detected in Blank	Concentration (µg/L)	Qualifier	Affected Samples
Field Blank	2/27/2023	Sodium, dissolved	0.278	NA	None, samples are >10x blank.
Field Blank	2/27/2023	Sodium, total	0.215	NA	None, samples are >10x blank.

1.8 DUPLICATE SAMPLE ANALYSIS

Refer to section E 1.6. The following sample(s) were used for laboratory duplicate analysis and the RPDs were all below 20 percent (or the absolute difference rule was satisfied if detects were less than 5 times the RL).

Lab Sample Number	Laboratory Duplicate Sample Client ID	Method(s)
L2309998-01	MW-01	6020B

The following sample(s) were used for field duplicate analysis. The RPD comparison for detections in either the parent or duplicate sample(s) is shown below. RPDs were all below 35 percent for water (or the absolute difference rule was satisfied if detects were less than 5 times the RL). Any exceptions are noted below and qualified.

Primary Sample ID	Duplicate Sample ID	Method(s)
MW-11	DUP-01	A, B, C, D, E, F, G, H

Field Duplicate RPD Calculations:

Method(s): SW 6020B				
Analyte (µg/L)	Primary Sample ID	Duplicate Sample ID	% RPD	Qualification
	MW-11	DUP-01		
Arsenic, dissolved	0.00123	0.00053	NA	J/UJ, Abs Diff > RL
Aluminum, total	0.893	2.49	94	J/UJ, RPD > 35%
Chromium, total	0.00193	0.00558	NA	J/UJ, Abs Diff > RL
Cobalt, total	0.00115	0.0338	NA	J/UJ, Abs Diff > RL
Copper, total	0.00349	0.01136	NA	J/UJ, Abs Diff > RL
Iron, total	1.29	4	102	J/UJ, RPD > 35%
Lead, total	0.00527	0.03187	143	J/UJ, RPD > 35%
Manganese, total	0.1969	0.2968	40	J/UJ, RPD > 35%
Nickel, total	0.00267	0.00627	NA	J/UJ, Abs Diff > RL
Zinc, total	0.0092	0.03923	NA	J/UJ, Abs Diff > RL

1.9 PRECISION AND ACCURACY

Refer to section E 1.7. Some measurement of analytical accuracy and precision was reported for each method with the site sample.

1.10 CONFIRMATION COLUMN REVIEW

Refer to section E 1.8. All relative percent differences (RPD) were within control limits.

1.11 PFAS SAMPLE PREPARATION

Refer to section E 1.14. The laboratory's SOP was reviewed and the reviewer confirmed it is the laboratory's procedure to use solid phase extraction (SPE) for sample preparation.

1.12 PFAS IDENTIFICATION

Refer to section E 1.15. Ion ratios were reviewed and were within the limits of 50 to 150 percent with the following exceptions:

Sample ID	Analyte	Qualifier	Affected Samples
L2310327-03	Perfluorooctanesulfonic acid (PFOS)	J	L2310327-03

1.13 EXTRACTION INTERNAL STANDARDS

Refer to section E 1.16. Recoveries were reviewed and found to be within the limits of 50 to 150 percent of the initial calibration (ICAL) midpoint standard/ initial continuing calibration verification (CCV), with the following exceptions:

Sample ID	Lab ID or Batch ID	Standard Name	%Recovery	Qualifier	Affected Samples
MW-08	L2310327-04	13C4-PFHpA	**169%**	**“J+/None” PFHpA**	MW-08

1.14 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the DQOs for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable as no data was rejected except for rejected data noted below. A summary of qualifiers applied to this data set is shown in Table 1.

2. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.2 Surrogate Recovery Compliance
  - Surrogates, also known as system monitoring compounds, are compounds added to each sample prior to sample preparation to determining the efficiency of the extraction procedure by evaluating the percent recovery (%R) of the compounds.
- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.4 Matrix Spike Samples
  - Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies.
  - For inorganic methods, when a matrix spike recovery falls outside of the control limits and the sample result is less than four times the spike added, a post digestion spike (PDS) is performed.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
  - Field blanks are prepared to identify contamination that may have been introduced during field activity. Equipment blanks are prepared to identify contamination that may have been introduced while decontaminating sampling equipment. Trip blanks are prepared when volatile analysis is requested to identify contamination that may have been introduced during transport.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
  - The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The relative percent difference (RPD) or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.

- Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.

- E 1.8 Confirmation Column Review
  - When analyzing for pesticides and polychlorinated biphenyls (PCB), compound identification based on single-column analysis should be confirmed on a second column or supported by at least one other qualitative technique. When confirmed on a second column, the relative percent difference (RPD) should not exceed 40 percent.
- E 1.14 PFAS Sample Preparation
  - Analysis of PFAS requires specific sample preparation. Aqueous samples must be prepared using Solid Phase Extraction (SPE), unless samples are known to contain high PFAS concentrations or the samples are injected directly into the LC/MS/MS instrument. Samples with greater than 1 percent solids may require centrifugation prior to SPE. The entire sample plus bottle rinsate must be extracted using SPE. If high PFAS concentrations are known, the samples may alternately be prepared using serial dilution performed in duplicate. If prepared by serial dilution, there must be documented project approval for this deviation.
- E 1.15 PFAS Identification
  - Identification of PFAS requires dual confirmation. The chemical derivation of the ion transitions must be documented. A minimum of two ion transitions per analyte are required (except for PFBA and PFPeA). Ratios of the quantitation ion to the confirmation ion should be calculated for samples and be within 50 to 150 percent of the ratios of the quantitation ion to the confirmation ion for standards.
  - Identification of PFAS also requires the proper assessment of branched and linear peaks. Standards for both isomers are not currently available for every PFAS compound, resulting in the common error of quantifying the area of only the branched or the linear isomers, which results in erroneous concentrations.
- E 1.16 Extraction Internal Standards
  - Analysis of PFAS by isotope dilution includes the use of extracted internal standards, which are stable isotope analogs of the PFAS compounds of interest added to each sample prior to extraction of the sample matrix. Matrix interferences that affect the quantification of the internal standard will affect the calculated target compound concentrations.
- E 1.22 Internal Standards
  - Internal standards are compounds added to each sample by the laboratory prior to volatile sample analysis to ensure that instrument sensitivity and response are stable during each analysis.
  - Internal standards are compounds added to each sample by the laboratory prior to metals sample analysis to ensure that instrument sensitivity and response are stable during each analysis. The lab uses a single internal standard to make sure they are

getting good intake of the sample into the instrument. Corrections are not made to any of the elements' responses based on this standard.

- E 1.23 Serial Dilutions
  - Inorganic analysis requires a serial dilution analysis, which determines whether significant physical or chemical interferences exists because of the sample matrix. If the analyte concentration is sufficiently high (concentration in the original sample is > 50x the Method Detection Limit (MDL) that is calculated for the sample) the Percent Difference (%D) between the original determination and the serial dilution analysis (a five-fold dilution) after correction for dilution should be low.

3. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB — Equipment Blank Sample
  - FB — Field Blank Sample
  - FD — Field Duplicate Sample
  - N — Primary Sample
  - TB — Trip Blank Sample
- Units:
  - µg/kg — microgram per kilogram
  - µg/L — microgram per liter
  - µg/m^3 — microgram per cubic meter
  - mg/kg — milligram per kilogram
  - mg/L — milligram per liter
  - ppb v/v — parts per billion volume/volume
  - pCi/L — picocuries per liter
  - pg/g — picograms per gram
- Matrices:
  - AA — Ambient Air
  - GS — Soil Gas
  - GW/WG — Groundwater
  - QW — Water Quality
  - IA — Indoor Air
  - SE — Sediment
  - SO — Soil
  - SSV — Sub-slab Vapor
  - WQ — Water Quality control matrix
  - WS — Surface Water
- Table Footnotes:
  - NA — Not applicable
  - ND — Non-detect
  - NR — Not reported
- Common Symbols:
  - % — percent
  - < — less than
  - ≤ — less than or equal to
  - > — greater than
  - ≥ — greater than or equal to
  - = — equal
  - °C — degrees Celsius
  - ± — plus or minus
  - ~ — approximately
  - x — times (multiplier)

4. Abbreviations

%D	Percent Difference
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation
%v/v	Percent volume by volume
µg/L	micrograms per liter
2s	2 sigma
4,4-DDT	4 4-dichlorodiphenyltrichloroethane
Abs Diff	Absolute Difference
amu	atomic mass unit
BPJ	Best Professional Judgement
BS	Blank Spike
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CCVL	Continuing Calibration Verification Low
COC	Chain of Custody
COM	Combined Isotope Calculation
Cr (VI)	Hexavalent Chromium
CRI	Collision Reaction Interface
DoD	Department of Defense
DQO	data quality objective
DUSR	Data Usability Summary Report
EMPC	Estimated Maximum Possible Concentration
FBK	Field Blank Contamination
FDP	Field Duplicate
GC	Gas Chromatograph
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
H2	Hydrogen gas
HCl	Hydrochloric Acid
ICAL	Initial Calibration
ICB	Initial Calibration Blank
ICP/MS	Inductively Coupled Plasma/ Mass Spectrometry
ICV	Initial Calibration Verification
ICVL	Initial Calibration Verification Low
IPA	Isopropyl Alcohol
LC	Laboratory Control
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MBK	Method Blank Contamination
MDC	Minimum Detectable Concentration
MDL	Laboratory Method Detection Limit
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	not applicable
ND	Non-Detect
NFG	National Functional Guidelines
NH_3	Ammonia
NYSDEC	New York State Department of Environmental Conservation
PAH	polycyclic aromatic hydrocarbon
PCB	Polychlorinated Biphenyl
PDS	Post Digestion Spike
PEM	Performance Evaluation Mixture
PFAS	Per- and Polyfluoroalkyl Substances
PFBA	Perfluorbutanoic Acid
PFD	Perfluorodecalin
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane sulfonate
PFPeA	Perfluoropentanoic Acid
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
R^2	R-squared value
Ra-226	Radium-226
Ra-228	Radium-228
RESC	Resolution Check Measure
RL	Laboratory Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factors
RT	Retention Time
SAP	sampling analysis plan
SDG	Sample Delivery Group
SIM	Selected ion monitoring
SOP	Laboratory Standard Operating Procedures
SPE	Solid Phase Extraction
SVOC	Semi-Volatile Organic Compounds
TIC	Tentatively Identified Compound
TKN	Total Kjeldahl Nitrogen
TPH	Total Petroleum Hydrocarbon
TPU	Total Propagated Uncertainty
amu	atomic mass unit
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compounds
WP	Work Plan

5. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Concentration (C) Qualifiers:

U	The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".
B	The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers:

E	The compound was quantitated above the calibration range.
D	The concentration is based on a diluted sample analysis.

- Validation Qualifiers:

J	The compound was positively identified; however, the associated numerical value is an estimated concentration only.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
J/UJ	as listed in exception tables J applies to detected data and UJ applies to non-detected data as reported by the laboratory.
UJ	The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.
NJ	The analysis indicated the presence of a compound for which there is presumptive evidence to make a tentative identification; the associated numerical value is an estimated concentration only.
R	The sample results were rejected as unusable; the compound may or may not be present in the sample.
S	Result is suspect. See DUSR for details.

References

1. United States Environmental Protection Agency (USEPA), 2020a. National Functional Guidelines for Inorganic Superfund Methods Data Review. EPA-542-R-20-006. November 2020.
2. USEPA, 2020b. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-20-005. November 2020.
3. New York State Department of Environmental Conservation (NYSDEC), 2021. Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances Under NYSDEC's Part 375 Remedial Programs. January 2021.

TABLE 1
SYSTEM PERFORMANCE SUMMARY
91 BRUCKNER
BRONX, NEW YORK

SDG	Method	Basis	Sample ID	Lab ID	Analyte	Fraction	Reportable Result	Reported Result	Validated Result	Reason for Qualifier
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Aluminum	T	Yes	2.49	2.49 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Arsenic	D	Yes	0.00053	0.00053 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Chromium	T	Yes	0.00558	0.00558 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Cobalt	T	Yes	0.00338	0.00338 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Copper	T	Yes	0.01136	0.01136 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Iron	T	Yes	4	4 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Lead	T	Yes	0.03187	0.03187 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Manganese	T	Yes	0.2968	0.2968 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Nickel	T	Yes	0.00627	0.00627 J	FDP
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Zinc	T	Yes	0.03923	0.03923 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Aluminum	T	Yes	0.893	0.893 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Arsenic	D	Yes	0.00123	0.00123 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Chromium	T	Yes	0.00193	0.00193 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Cobalt	T	Yes	0.00115	0.00115 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Copper	T	Yes	0.00349	0.00349 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Iron	T	Yes	1.29	1.29 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Lead	T	Yes	0.00527	0.00527 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Manganese	T	Yes	0.1969	0.1969 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Nickel	T	Yes	0.00267	0.00267 J	FDP
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Zinc	T	Yes	0.0092 J	0.0092 J	FDP
L2310327	E1633	NA	MW-06-20230227	L2310327-03	Perfluorooctanesulfonic acid (PFOS)	N	Yes	7.35	7.35 J	ION
L2310327	SW8270E	NA	DUP-01-02272023	L2310327-06	4-Chloroaniline	N	Yes	U	UJ	LCS
L2310327	SW8270E	NA	FB-05-02272023	L2310327-07	4-Chloroaniline	N	Yes	U	UJ	LCS
L2309998	SW8270E	NA	MW-01-20230224	L2309998-01	3,3'-Dichlorobenzidine	N	Yes	U	UJ	LCS
L2310327	SW8270E	NA	MW-02-20230227	L2310327-01	4-Chloroaniline	N	Yes	U	UJ	LCS
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	4-Chloroaniline	N	Yes	U	UJ	LCS
L2310327	SW8270E	NA	MW-08-20230227	L2310327-04	4-Chloroaniline	N	Yes	U	UJ	LCS
L2310327	SW8270E	NA	MW-11-20230227	L2310327-05	4-Chloroaniline	N	Yes	U	UJ	LCS
L2310327	SW6020B	NA	DUP-01-02272023	L2310327-06	Aluminum	D	Yes	0.01	0.01 U	MBK
L2310327	SW6020B	NA	FB-05-02272023	L2310327-07	Thallium	D	Yes	0.00027 J	0.002 U	MBK
L2309998	SW6020B	NA	MW-01-20230224	L2309998-01	Thallium	D	Yes	0.00026 J	0.001 U	MBK
L2309998	SW8270ESIM	NA	MW-01-20230224	L2309998-01	Benzo(a)anthracene	N	Yes	0.03 J	0.1 U	MBK
L2309998	SW8270ESIM	NA	MW-01-20230224	L2309998-01	Benzo(b)fluoranthene	N	Yes	0.02 J	0.1 U	MBK
L2309998	SW8270ESIM	NA	MW-01-20230224	L2309998-01	Benzo(k)fluoranthene	N	Yes	0.01 J	0.1 U	MBK
L2309998	SW8270ESIM	NA	MW-01-20230224	L2309998-01	Chrysene	N	Yes	0.01 J	0.1 U	MBK
L2309998	SW8270ESIM	NA	MW-01-20230224	L2309998-01	Pyrene	N	Yes	0.03 J	0.1 U	MBK
L2310327	SW6020B	NA	MW-02-20230227	L2310327-01	Aluminum	D	Yes	0.00941 J	0.01 U	MBK
L2310327	SW6020B	NA	MW-02-20230227	L2310327-01	Thallium	D	Yes	0.00024 J	0.002 U	MBK
L2310327	SW6020B	NA	MW-03-20230227	L2310327-02	Aluminum	D	Yes	0.00506 J	0.01 U	MBK
L2310327	SW6020B	NA	MW-03-20230227	L2310327-02	Thallium	T	Yes	0.00026 J	0.001 U	MBK
L2310327	SW6020B	NA	MW-06-20230227	L2310327-03	Aluminum	D	Yes	0.00423 J	0.01 U	MBK
L2310327	SW6020B	NA	MW-06-20230227	L2310327-03	Thallium	D	Yes	0.00019 J	0.002 U	MBK
L2310327	SW6020B	NA	MW-08-20230227	L2310327-04	Aluminum	D	Yes	0.00406 J	0.01 U	MBK
L2310327	SW6020B	NA	MW-08-20230227	L2310327-04	Thallium	D	Yes	0.0002 J	0.002 U	MBK
L2310327	SW6020B	NA	MW-11-20230227	L2310327-05	Aluminum	D	Yes	0.0168	0.0168 J+	MBK
L2310327	SW8270E	NA	MW-03-20230227	L2310327-02	3,3'-Dichlorobenzidine	N	Yes	U	R	MSD
L2310327	SW8270E	NA	MW-03-20230227	L2310327-02	3-Nitroaniline	N	Yes	U	UJ	MSD
L2310327	SW8270E	NA	MW-03-20230227	L2310327-02	4-Nitroaniline	N	Yes	U	UJ	MSD
L2310327	SW8270E	NA	MW-03-20230227	L2310327-02	4-Chloroaniline	N	Yes	U	UJ	MSD, LCS
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	1,2-Dichlorobenzene	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	1,3-Dichlorobenzene	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	1,4-Dichlorobenzene	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	2,4-Dimethylphenol	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	2-Chlorophenol	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	2-Methylphenol (o-Cresol)	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	2-Nitrophenol	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	3&4-Methylphenol	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	Acetophenone	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	Benzyl Alcohol	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	Isophorone	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	N-Nitrosodi-n-propylamine	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	Phenol	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	bis(2-Chloroethoxy)methane	N	Yes	U	UJ	SUR
L2310327	SW8270E	NA	MW-06-20230227	L2310327-03	bis(2-Chloroethyl)ether	N	Yes	U	UJ	SUR
L2310327	E1633	NA	MW-08-20230227	L2310327-04	Perfluoroheptanoic acid (PFHpA)	N	Yes	1.08 J	1.08 J+	SUR

Notes:

FDP = Field duplicate qualifier due to an exceedance of the specified limits.

ION = Ion ratios were reviewed and were outside the limits of 50 to 150 percent; or the signal to noise ratios (S/N) were not ≥ 10 for all ions used for quantitation; or ≥ 3 for all ions used for confirmation.

LCS = Laboratory control/laboratory control spike duplicate percent recoveries or relative percent difference were outside the specified limits.

MBK = Method blank contamination.

MSD = Matrix spike/matrix spike duplicate percent recoveries or relative percent difference were outside the specified limits.

SUR = Surrogate percent recovery outside the specified limits.

J = The compound was positively identified; however, the associated numerical value is an estimated concentration only.

J+ = The result is an estimated quantity, but the result may be biased high.

R = The sample results were rejected as unusable; the compound may or may not be present in the sample.

U = The compound was analyzed for but not detected.

UJ = The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.

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Data Usability Summary Report

Project Name: 91 Bruckner

Project Description: Soil Gas Samples

Sample Date(s): 15 and 16 February 2023

Analytical Laboratory: Alpha Analytical – Westborough, MA

Validation Performed by: Oscar Cervantes

Validation Reviewed by: Katherine Miller

Validation Date: 7 March 2023

Haley & Aldrich, Inc. prepared this Data Usability Summary Report (DUSR) to summarize the review and validation of the analytical results for Sample Delivery Group(s) (SDG) listed. This DUSR is organized into the following sections:

This data validation and usability assessment was performed per the guidance and requirements established by the United States Environmental Protection Agency (USEPA) using the following reference materials:

- National Functional Guidelines (NFG) for Organic Data Review.
- Analysis of Volatile Organic Compounds (VOCs) in Air Contained in Canisters by Method TO-15.

Data reported in this sampling event were reported to the laboratory reporting limit (RL). Results found between the method detection limit (MDL) and RL are flagged J as estimated.

Sample data were qualified in accordance with the laboratory's standard operating procedures (SOP). The results presented in each laboratory report were found to be compliant with the data quality objectives (DQO) for the project and therefore usable; any exceptions are noted in the following pages.

1. Sample Delivery Group Numbers L2308185 and L2308482

1.1 SAMPLE MANAGEMENT

This DUSR summarizes the review of SDG number L2308185 and L2308482. Samples were collected, preserved, and shipped following standard chain of custody (COC) protocol.

Samples were also received appropriately, identified correctly, and analyzed according to the COC.

Analyses were performed on the following samples:

Sample ID	Sample Type	Lab ID	Sample Date	Matrix	Methods
SV-10	N	L2308185-01	2/15/2023	Soil Gas	TO-15
SV-04	N	L2308185-02	2/15/2023	Soil Gas	TO-15
SV-01	N	L2308185-03	2/15/2023	Soil Gas	TO-15
SV-02	N	L2308185-04	2/15/2023	Soil Gas	TO-15
SV-03	N	L2308185-05	2/15/2023	Soil Gas	TO-15
SV-05	N	L2308185-06	2/15/2023	Soil Gas	TO-15
SV-11	N	L2308185-07	2/15/2023	Soil Gas	TO-15
SV-06	N	L2308482-01	2/16/2023	Soil Gas	TO-15
SV-07	N	L2308482-02	2/16/2023	Soil Gas	TO-15
SV-08	N	L2308482-03	2/16/2023	Soil Gas	TO-15
SV-09	N	L2308482-04	2/16/2023	Soil Gas	TO-15

Method Holding Times			
A.	TO-15	Volatile Organic Compounds (VOCs)	28 days

1.2 MULTIPLE SAMPLE RESULTS

The laboratory reported multiple results for the samples listed below. The validator chose the results that best met the DQO of the project.

Lab ID	Method	Analyte	Qualification
L2308185-04 L2308185-05 L2308185-07	TO-15	Acetone	The laboratory reanalyzed the sample due to the result exceeding the calibration range. The original results are marked nonreportable and the reanalysis results are accepted.
L2308185-06	TO-15	1,2,4-Trimethylbenzene	The laboratory reanalyzed the sample due to the result exceeding the calibration range. The original results are marked nonreportable and the reanalysis results are accepted.

1.3 HOLDING TIMES/PRESERVATION

The samples arrived at the laboratory at the proper temperature and were prepared and analyzed within the holding time and preservation criteria specified per method protocol.

1.4 REPORTING LIMITS AND SAMPLE DILUTIONS

All sample dilutions were reviewed and found to be justified. Dilution of the project samples were required to bring calibration of target analytes within calibration range, matrix interference, foaming at the time of purging, or abundance of non-target analytes.

1.5 LABORATORY CONTROL SAMPLES

Refer to section E 1.3. Compounds associated with the laboratory control samples (LCS) analyses associated with client samples exhibited recoveries within the specified limits with the following exceptions:

SDG	Sample Type	Method	Batch ID	Analyte	%R/RPD	Qualifier	Affected Samples
L2308185	LCS	TO-15	WG1746046-3	Trichlorofluoromethane	133%	J/None	None, samples are ND
L2308185	LCS	TO-15	WG1746046-3	3-Chloropropene	135%	J/None	None, samples are ND

1.6 MATRIX SPIKE SAMPLES

Refer to section E 1.4. The laboratory did not analyze any matrix spike/matrix spike duplicate (MS/MSD) analysis in this SDG.

1.7 BLANK SAMPLE ANALYSIS

Refer to section E 1.5. Method blank samples had no detections, indicating that no contamination from laboratory activities occurred.

1.8 DUPLICATE SAMPLE ANALYSIS

Refer to section E 1.6. The following sample(s) were used for laboratory duplicate analysis and the relative percent differences (RPDs) were all below 20 percent (or the absolute difference rule was satisfied if detects were less than 5 times the RL):

Lab Sample Number	Laboratory Duplicate Sample Client ID	Method(s)
L2308185-06	SV-06	TO-15

No field duplicates were collected in this data set.

1.9 PRECISION AND ACCURACY

Refer to section E 1.7. Where required by the method, some measurement of analytical accuracy and precision was reported for each method with the site samples.

1.10 CLEAN CANISTER CERTIFICATION

The canisters used for the TO-15 sample collection were certified clean by individual can analysis prior to sampling to ensure that no target analytes were present. These analysis sheets were reviewed, and no target analytes were detected in the laboratory-provided canisters.

1.11 INITIAL CALIBRATION

Refer to section E 1.20. Proper concentrations for standards were used for the instruments and Relative Response Factors (RRF) and Percent Relative Standard Deviation (%RSD) were within the specified limits.

1.12 INITIAL AND CONTINUING CALIBRATION VERIFICATION

Refer to section E 1.21. RRFs and the Percent Difference (%D) were reported for TO-15 and were within the specified limits.

1.13 INTERNAL STANDARDS

Refer to section E 1.22. Area response and retention time were reviewed and found to be within the specified limits.

1.14 SYSTEM PERFORMANCE AND OVERALL ASSESSMENT

The results presented in this report were found to comply with the data quality objectives for the project and the guidelines specified by the analytical method. Based on the review of this report, the data are useable and acceptable except for rejected data noted below. The qualifiers applied to this data set are summarized in the table below.

Sample ID	Analyte	Reported Result	Validated Result	Reason for Qualifier
L2308185-04	Acetone	1820	1820 E	Exceeds Calibration Range
L2308185-05	Acetone	1710	1710 E	Exceeds Calibration Range
L2308185-07	Acetone	1630	1630 E	Exceeds Calibration Range
L2308185-06	1,2,4-Trimethylbenzene	1710	1710 E	Exceeds Calibration Range

2. Explanations

The following explanations include more detailed information regarding each of the sections in the DUSR above. Not all sections in the Explanations are represented:

- E 1.3 Laboratory Control Samples
  - The laboratory control sample/laboratory control sample duplicate (LCS/LCSD) analyses are used to assess the precision and accuracy of the analytical method independent of matrix interferences.
- E 1.4 Matrix Spike Samples
  - Matrix spike/matrix spike duplicate (MS/MSD) data are used to assess the precision and accuracy of the analytical method and evaluate the effects of the sample matrix on the sample preparation procedures and measurement methodologies.
  - For inorganic methods, when a matrix spike recovery falls outside of the control limits and the sample result is less than four times the spike added, a post digestion spike (PDS) is performed.
- E 1.5 Blank Sample Analysis
  - Method blanks are prepared by the analytical laboratory and analyzed concurrently with the project samples to assess possible laboratory contamination.
- E 1.6 Laboratory and Field Duplicate Sample Analysis
  - The laboratory duplicate sample analysis is used by the laboratory at the time of the analysis to demonstrate acceptable method precision. The RPD or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
  - The field duplicate sample analysis is used to assess the precision of the field sampling procedures and analytical method. The relative percent difference (RPD) or absolute difference was evaluated for each duplicate sample pair to monitor the reproducibility of the data.
- E 1.7 Precision and Accuracy
  - Precision measures the reproducibility of repetitive measurements. In a laboratory environment, this will be measured by determining the relative percent difference (RPD) found between a primary and a duplicate sample. This can be an LCS/LCSD pair, a MS/MSD pair, a laboratory duplicate performed on a site sample, or a field duplicate collected and analyzed concurrently with a site sample.
  - Accuracy is a statistical measurement of the correctness of a measured value and includes components of random error (variability caused by imprecision) and systematic error. In a laboratory environment, this will be measured by determining the percent recovery (%R) of certain spiked compounds. This can be assessed using LCS, blank spike (BS), MS, and/or surrogate recoveries.
- E 1.8 Confirmation Column Review
  - When analyzing for pesticides and polychlorinated biphenyls (PCB), compound identification based on single-column analysis should be confirmed on a second column

or supported by at least one other qualitative technique. When confirmed on a second column, the relative percent difference (RPD) should not exceed 40 percent.

- E 1.20 Initial Calibration
  - Organic methods require an initial calibration to ensure the instrument is capable of producing acceptable qualitative and quantitative data. Standards of varying concentrations are run to create a calibration curve, which is then used to ensure the validity of compound quantitation.
  - Inorganic methods require an Initial Calibration to ensure the instrument is capable of producing acceptable qualitative and quantitative data. Instruments should be calibrated each time the instrument is set up and after CCV failure. A blank and at least five standards of varying concentrations should be run to create a calibration curve. At least one of these must be at or below the RL but above the method detection limit (MDL).
  - The curve must have a correlation coefficient of greater than or equal to 0.995 and the calculated percent differences (%D) for all non-zero standards must be within ±30 percent of the true value.
- E 1.21 Initial and Continuing Calibration Verification
  - Organic methods require an additional ICV and CCV to ensure that the instrument continues to meet the sensitivity and linearity criteria to produce acceptable qualitative and quantitative data throughout each analytical sequence. CCVs must be run at the beginning and end of every 12-hour period of operation.
  - Inorganic methods require an ICV and CCV to ensure that the instrument continues to meet the sensitivity and linearity criteria to produce acceptable qualitative and quantitative data throughout each analytical sequence. Initial calibrations must be run each time the instrument is set up and after each CCV failure. ICVs are analyzed immediately after initial calibration to verify ICAL accuracy, and CCVs are analyzed every two hours during an analytical sequence. %R is reported and must be within the specified limits (90 to 110 percent).
- E 1.22 Internal Standards
  - Internal standards are compounds added to each sample by the laboratory prior to volatile sample analysis to ensure that instrument sensitivity and response are stable during each analysis.
  - Internal standards are compounds added to each sample by the laboratory prior to metals sample analysis to ensure that instrument sensitivity and response are stable during each analysis. The lab uses a single internal standard to make sure they are getting good intake of the sample into the instrument. Corrections are not made to any of the elements' responses based on this standard.

3. Glossary

Not all of the following symbols, acronyms, or qualifiers occur in this document.

- Sample Types:
  - EB Equipment Blank Sample
  - FB Field Blank Sample
  - FD Field Duplicate Sample
  - N Primary Sample
  - TB Trip Blank Sample
- Units:
  - µg/kg microgram per kilogram
  - µg/L microgram per liter
  - µg/m^3 microgram per cubic meter
  - mg/kg milligram per kilogram
  - mg/L milligram per liter
  - ppb v/v parts per billion volume/volume
  - pCi/L picocuries per liter
  - pg/g picograms per gram
- Matrices:
  - AA Ambient Air
  - GS Soil Gas
  - GW/WG Groundwater
  - QW Water Quality
  - IA Indoor Air
  - SE Sediment
  - SO Soil
  - WQ Water Quality control matrix
  - WS Surface Water
- Table Footnotes:
  - NA Not applicable
  - ND Non-detect
  - NR Not reported
- Common Symbols:
  - % percent
  - < less than
  - ≤ less than or equal to
  - > greater than
  - ≥ greater than or equal to
  - = equal
  - °C degrees Celsius
  - ± plus or minus
  - ~ approximately
  - x times (multiplier)

4. Abbreviations

%D	Percent Difference
%R	Percent Recovery
%RSD	Percent Relative Standard Deviation
%v/v	Percent volume by volume
µg/L	micrograms per liter
2s	2 sigma
4,4-DDT	4 4-dichlorodiphenyltrichloroethane
Abs Diff	Absolute Difference
amu	atomic mass unit
BPJ	Best Professional Judgement
BS	Blank Spike
CCB	Continuing Calibration Blank
CCV	Continuing Calibration Verification
CCVL	Continuing Calibration Verification Low
COC	Chain of Custody
COM	Combined Isotope Calculation
Cr (VI)	Hexavalent Chromium
CRI	Collision Reaction Interface
DoD	Department of Defense
DQO	data quality objective
DUSR	Data Usability Summary Report
EMPC	Estimated Maximum Possible Concentration
FBK	Field Blank Contamination
FDP	Field Duplicate
GC	Gas Chromatograph
GC/MS	Gas Chromatography/Mass Spectrometry
GPC	Gel Permeation Chromatography
H2	Hydrogen gas
HCl	Hydrochloric Acid
ICAL	Initial Calibration
ICB	Initial Calibration Blank
ICP/MS	Inductively Coupled Plasma/ Mass Spectrometry
ICV	Initial Calibration Verification
ICVL	Initial Calibration Verification Low
IPA	Isopropyl Alcohol
LC	Laboratory Control
LCS/LCSD	Laboratory Control Sample/Laboratory Control Sample Duplicate
MBK	Method Blank Contamination
MDC	Minimum Detectable Concentration
MDL	Laboratory Method Detection Limit
mg/kg	milligrams per kilogram
MS/MSD	Matrix Spike/Matrix Spike Duplicate
NA	not applicable
ND	Non-Detect
NFG	National Functional Guidelines
NH_3	Ammonia
NYSDEC	New York State Department of Environmental Conservation
PAH	polycyclic aromatic hydrocarbon
PCB	Polychlorinated Biphenyl
PDS	Post Digestion Spike
PEM	Performance Evaluation Mixture
PFAS	Per- and Polyfluoroalkyl Substances
PFBA	Perfluorbutanoic Acid
PFD	Perfluorodecalin
PFOA	Perfluorooctanoic Acid
PFOS	Perfluorooctane sulfonate
PFPeA	Perfluoropentanoic Acid
QAPP	Quality Assurance Project Plan
QC	Quality Control
QSM	Quality Systems Manual
R^2	R-squared value
Ra-226	Radium-226
Ra-228	Radium-228
RESC	Resolution Check Measure
RL	Laboratory Reporting Limit
RPD	Relative Percent Difference
RRF	Relative Response Factors
RT	Retention Time
SAP	sampling analysis plan
SDG	Sample Delivery Group
SIM	Selected ion monitoring
SOP	Laboratory Standard Operating Procedures
SPE	Solid Phase Extraction
SVOC	Semi-Volatile Organic Compounds
TIC	Tentatively Identified Compound
TKN	Total Kjeldahl Nitrogen
TPH	Total Petroleum Hydrocarbon
TPU	Total Propagated Uncertainty
amu	atomic mass unit
USEPA	U.S. Environmental Protection Agency
VOC	Volatile Organic Compounds
WP	Work Plan

5. Qualifiers

The qualifiers below are from the USEPA National Functional Guidelines and the data in the DUSR may contain these qualifiers:

- Concentration (C) Qualifiers:

  U The compound was analyzed for but not detected. The associated value is either the compound quantitation limit if not detected by the analytical instrument or could be the reported or blank concentration if qualified by blank contamination. This can also be displayed as less than the associated compound quantitation limit (<RL or <MDL), or "ND".

  B The compound was found in the sample and its associated blank. Its presence in the sample may be suspect.

- Quantitation (Q) Qualifiers:

  E The compound was quantitated above the calibration range.

  D The concentration is based on a diluted sample analysis.

- Validation Qualifiers:

  J The compound was positively identified; however, the associated numerical value is an estimated concentration only.

  J+ The result is an estimated quantity, but the result may be biased high.

  J- The result is an estimated quantity, but the result may be biased low.

  J/UJ as listed in exception tables J applies to detected data and UJ applies to non-detected data as reported by the laboratory.

  UJ The compound was not detected above the reported sample quantitation limit; however, the reported limit is estimated and may or may not represent the actual limit of quantitation.

  NJ The analysis indicated the presence of a compound for which there is presumptive evidence to make a tentative identification; the associated numerical value is an estimated concentration only.

  R The sample results were rejected as unusable; the compound may or may not be present in the sample.

  S Result is suspect. See DUSR for details.

References

1. United States Environmental Protection Agency (USEPA), 2014. Analysis of Volatile Organic Compounds in Air Contained in Canisters by Method TO-15, SOP NO. HW-31, Revision 6. June 2014.
2. USEPA, 2020. National Functional Guidelines for Organic Superfund Methods Data Review. EPA-540-R-20-005. November 2020.

APPENDIX I
Daily Reports

DAILY FIELD REPORT

Project	Former Fiedler Waterproofing & Masonry Site	Report No.	001
NYSDEC BCP Site	C203160	Date	2/13/2023
Location	91 Bruckner Boulevard, Bronx, NY	File No.	0204520
Client	91 Bruckner Blvd LLC	Temperature	38-55°F
Contractor	Lakewood Environmental Services Corp (Lakewood)	Wind Direction	Southeast
Weather	Partly Cloudy	Personnel on Site	P. DiNardo, H. Russell
Humidity	30%	Time on Site	07:00-15:45

Haley & Aldrich of New York (Haley & Aldrich) was present to document the implementation of the Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site BCP Site C203160, located at 91 Bruckner Boulevard, Bronx, NY. Site Observations are summarized below.

Daily Observations:

- Haley & Aldrich field personnel performed community air monitoring during the implementation of the activities in the approved Remedial Investigation Work Plan
- Lakewood mobilized a Geoprobe drilling rig (6610D) to the site
- Lakewood completed installation of 7 borings (SB-04, SB-05, SB-07, SB-10, SB-12, SB-13, SB-14) to 15 feet below grade surface (ft bgs) and collected soil samples in accordance with the RIWP
- Lakewood completed installation of 4 soil vapor points (SV-04, SV-05, SV-07, SV-10) to 12-14 ft bgs

Samples Collected:

- Soil samples were collected from SB-04, SB-05, SB-07, SB-10, SB-12, SB-13, SB-14 in accordance with the RIWP
- 1 Field Duplicate
- 1 QA/QC Field Blank
- 1 Trip Blank
- All samples were submitted on ice in a cooler via courier to Alpha Analytical Laboratories, Inc. in Westborough, MA for analyses in accordance with the RIWP

CAMP Activities:

- Haley & Aldrich performed community air monitoring collecting upwind background readings and at a downwind location during ground-intrusive work. Community air monitoring included a MiniRae 3000 photoionization detector (PID) and olfactory observations to monitor volatile organic compounds (VOCs) and a DusTrak II and visual observations for dust particulate matter.
    - Upwind Background/Pre-Work Conditions
        - PID: 0.1 ppm
        - DusTrak: 0.010 ug/m^3
    - Maximum Downwind Work Conditions
        - PID: 0.1 ppm
        - DusTrak: 0.039 ug/m^3

- No 15-minute average concentrations of VOCs or total particulates exceeded the action levels throughout the day. No visible dust or odors were observed leaving the site perimeter.

Activities Planned for Coming Week:

- Lakewood will continue implementing the Remedial Investigation including soil borings, monitoring well installation and soil vapor point installation.

Site Map:

CAMP Station

DAILY FIELD REPORT

Site Photographs:

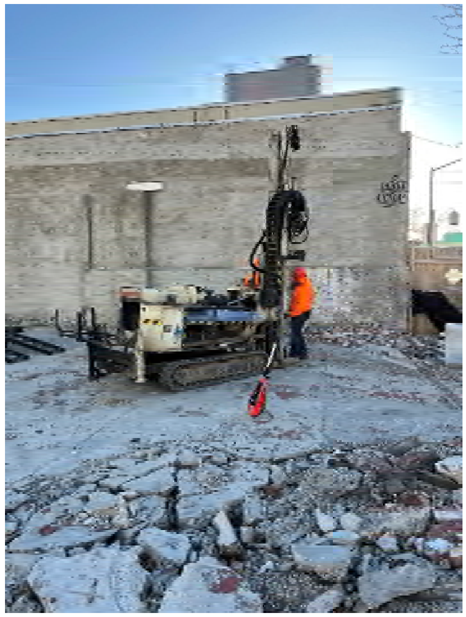


Photo 1: View of drilling activities, facing east.

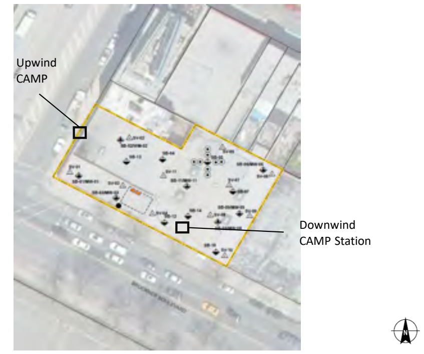
Photo 2: Alternate view of drilling activities, facing north.

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Date:	2/13/2023
Personnel:	P. DiNardo, H. Russell
Weather:	Sunny
Humidity:	30%
Temperature:	38-55 F
Wind Direction:	Southeast

PID Background (ppm): 0.1
DustTrak Background (ug/m3): 0.010

Site Map:



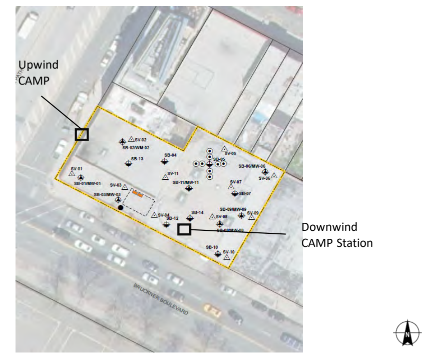
Time	Dustrak (mg/m3) Upwind	Dustrak (mg/m3) Downwind	PID (ppm) Upwind	PID (ppm) Downwind	Odors (Y/N)	Notes/Comments
745	0.010	0.007	0.1	0.1	N	
800	0.010	0.028	0.1	0.1	N	
815	0.009	0.015	0.1	0.1	N	
830	0.010	0.025	0.1	0.0	N	
845	0.011	0.010	0.1	0.1	N	
900	0.010	0.009	0.1	0.1	N	
915	0.010	0.015	0.1	0.1	N	
930	0.011	0.018	0.0	0.1	N	
945	0.010	0.012	0.1	0.1	N	
1000	0.010	0.028	0.1	0.1	N	
1015	0.010	0.032	0.1	0.1	N	
1030	0.009	0.024	0.0	0.1	N	
1045	0.010	0.031	0.1	0.1	N	
1100	0.010	0.020	0.1	0.1	N	
1115	0.010	0.018	0.1	0.0	N	
1130	0.010	0.016	0.1	0.1	N	
1145	0.011	0.022	0.1	0.1	N	
1200	0.010	0.022	0.1	0.1	N	
1215	0.010	0.025	0.1	0.0	N	
1230	0.009	0.023	0.1	0.1	N	
1245	0.010	0.024	0.1	0.1	N	
1300	0.010	0.013	0.0	0.1	N	
1315	0.011	0.029	0.1	0.1	N	
1330	0.010	0.026	0.1	0.1	N	

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Date: 2/13/2023
Personnel: P. DiNardo, H. Russell
Weather: Sunny
Humidity: 30%
Temperature: 38-55 F
Wind Direction: Southeast

PID Background (ppm): 0.1
DustTrak Background (ug/m3): 0.010

Site Map:



Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
745	0.010	0.007	0.1	0.1	N	
800	0.010	0.028	0.1	0.1	N	
815	0.009	0.015	0.1	0.1	N	
830	0.010	0.025	0.1	0.0	N	
845	0.011	0.010	0.1	0.1	N	
900	0.010	0.009	0.1	0.1	N	
915	0.010	0.015	0.1	0.1	N	
930	0.011	0.018	0.0	0.1	N	
945	0.010	0.012	0.1	0.1	N	
1000	0.010	0.028	0.1	0.1	N	
1015	0.010	0.032	0.1	0.1	N	
1030	0.009	0.024	0.0	0.1	N	
1045	0.010	0.031	0.1	0.1	N	
1100	0.010	0.020	0.1	0.1	N	
1115	0.010	0.018	0.1	0.0	N	
1130	0.010	0.016	0.1	0.1	N	
1145	0.011	0.022	0.1	0.1	N	
1200	0.010	0.022	0.1	0.1	N	
1215	0.010	0.025	0.1	0.0	N	
1230	0.009	0.023	0.1	0.1	N	
1245	0.010	0.024	0.1	0.1	N	
1300	0.010	0.013	0.0	0.1	N	
1315	0.011	0.029	0.1	0.1	N	
1330	0.010	0.026	0.1	0.1	N	

DAILY FIELD REPORT

Project	Former Fiedler Waterproofing & Masonry Site	**Report No.**	002
NYSDEC BCP Site	C203160	**Date**	2/14/2023
Location	91 Bruckner Boulevard, Bronx, NY	**File No.**	0204520
Client	91 Bruckner Blvd LLC	**Temperature**	40-53°F
Contractor	Lakewood Environmental Services Corp (Lakewood)	**Wind Direction**	East
Weather	Sunny	**Personnel on Site**	P. DiNardo, H. Russell
Humidity	57%	**Time on Site**	07:00-15:00

Haley & Aldrich of New York (Haley & Aldrich) was present to document the implementation of the Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site BCP Site C203160, located at 91 Bruckner Boulevard, Bronx, NY. Site Observations are summarized below.

Daily Observations:

- Haley & Aldrich field personnel performed community air monitoring during the implementation of the activities in the approved Remedial Investigation Work Plan
- Lakewood completed installation of 1 monitoring well, MW-1, screening from 15 to 25 ft bgs.
- Lakewood completed installation of 2 soil borings (SB-01, SB-08) to 15 feet below grade surface (ft bgs) and collected soil samples in accordance with the RIWP
- Lakewood completed installation of 1 soil vapor point (SV-01) to 12-14 ft bgs

Samples Collected:

- Soil samples were collected from SB-01 and SB-08 in accordance with the RIWP
- 1 QA/QC Field Blank
- 1 Trip Blank
- All samples were submitted on ice in a cooler via courier to Alpha Analytical Laboratories, Inc. in Westborough, MA for analyses in accordance with the RIWP

CAMP Activities:

- Haley & Aldrich performed community air monitoring collecting upwind background readings and at a downwind location during ground-intrusive work. Community air monitoring included a MiniRae 3000 photoionization detector (PID) and olfactory observations to monitor volatile organic compounds (VOCs) and a DusTrak II and visual observations for dust particulate matter.
  - Upwind Background/Pre-Work Conditions
    - PID: 0.0 ppm
    - DustTrak: 0.007 ug/m^3
  - Maximum Downwind Work Conditions
    - PID: 0.0 ppm
    - DustTrak: 0.042 ug/m^3
- No 15-minute average concentrations of VOCs or total particulates exceeded the action levels throughout the day. No visible dust or odors were observed leaving the site perimeter.

Activities Planned for Coming Week:

- Lakewood will continue implementing the Remedial Investigation including soil borings, monitoring well installation and soil vapor point installation.

DAILY FIELD REPORT

Site Map:

CAMP Station

DAILY FIELD REPORT

Site Photographs:

Photo 1: View of drilling activities at SB/MW-01, facing west.

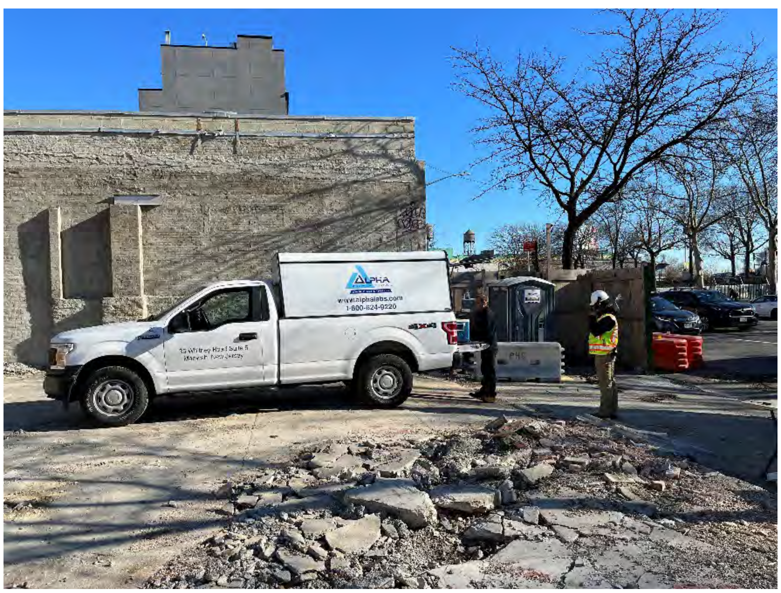
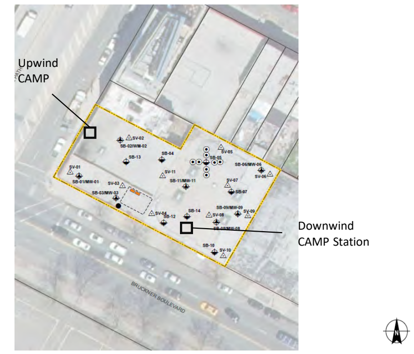


Photo 2: Sample pickup by Alpha Analytical.

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Date:	2/14/2023
Personnel:	P. DiNardo, H. Russell
Weather:	Sunny
Humidity:	57%
Temperature:	40-53 F
Wind Direction:	East
PID Background (ppm):	0.0
DustTrak Background (ug/m3):	0.007

Site Map:



Time	Dustrak (mg/m3) Upwind	Dustrak (mg/m3) Downwind	PID (ppm) Upwind	PID (ppm) Downwind	Odors (Y/N)	Notes/Comments
730	0.007	0.014	0.0	0.0	N	
745	0.007	0.017	0.0	0.0	N	
800	0.007	0.022	0.0	0.0	N	
815	0.007	0.027	0.0	0.0	N	
830	0.007	0.013	0.0	0.0	N	
845	0.007	0.021	0.0	0.0	N	
900	0.008	0.042	0.0	0.0	N	
915	0.007	0.033	0.0	0.0	N	
930	0.007	0.010	0.0	0.0	N	
945	0.010	0.019	0.0	0.0	N	
1000	0.010	0.021	0.0	0.0	N	
1015	0.007	0.024	0.0	0.0	N	
1030	0.008	0.011	0.0	0.0	N	
1045	0.007	0.028	0.0	0.0	N	
1100	0.007	0.017	0.0	0.0	N	
1115	0.007	0.022	0.0	0.0	N	
1130	0.010	0.018	0.0	0.0	N	
1145	0.007	0.017	0.0	0.0	N	
1200	0.007	0.026	0.0	0.0	N	
1215	0.007	0.014	0.0	0.0	N	
1230	0.007	0.007	0.0	0.0	N	
1245	0.007	0.010	0.0	0.0	N	
1300	0.007	0.008	0.0	0.0	N	
1315	0.007	0.009	0.0	0.0	N	

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
1330	0.007	0.005	0.0	0.0	N	
1345	0.007	0.008	0.0	0.0	N	
1400	0.005	0.011	0.0	0.0	N	
1415	0.005	0.009	0.0	0.0	N	
1430	0.007	0.008	0.0	0.0	N	
1445	0.007	0.013	0.0	0.0	N	
1500	0.007	0.008	0.0	0.0	N	

HALEY ALDRICH

DAILY FIELD REPORT

Project	Former Fiedler Waterproofing & Masonry Site	**Report No.**	003
NYSDEC BCP Site	C203160	**Date**	2/15/2023
Location	91 Bruckner Boulevard, Bronx, NY	**File No.**	0204520
Client	91 Bruckner Blvd LLC	**Temperature**	44-56°F
Contractor	Lakewood Environmental Services Corp (Lakewood)	**Wind Direction**	North
Weather	Sunny	**Personnel on Site**	P. DiNardo, H. Russell
Humidity	72%	**Time on Site**	07:00-15:00

Haley & Aldrich of New York (Haley & Aldrich) was present to document the implementation of the Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site BCP Site C203160, located at 91 Bruckner Boulevard, Bronx, NY. Site Observations are summarized below.

Daily Observations:

- Haley & Aldrich field personnel performed community air monitoring during the implementation of the activities in the approved Remedial Investigation Work Plan
- Lakewood completed installation of 5 soil borings (SB-02, SB-03, SB-06, SB-09, SB-11) to 15 feet below grade surface (ft bgs) and collected soil samples in accordance with the RIWP
- Lakewood completed installation of 6 soil vapor points (SV-02, SV-03, SV-06, SV-08, SV-09, SV-11) to 12-14 ft bgs

Samples Collected:

- Soil samples were collected from SB-02, SB-03, SB-06, SB-09, and SB-11 in accordance with the RIWP
- Soil vapor samples were collected from SV-01, SV-02, SV-03, SV-04, SV-05, SV-10, and SV-11 in accordance with the RIWP
- 1 QA/QC Field Blank
- 1 Trip Blank
- All samples were submitted on ice in a cooler via courier to Alpha Analytical Laboratories, Inc. in Westborough, MA for analyses in accordance with the RIWP

CAMP Activities:

- Haley & Aldrich performed community air monitoring collecting upwind background readings and at a downwind location during ground-intrusive work. Community air monitoring included a MiniRae 3000 photoionization detector (PID) and olfactory observations to monitor volatile organic compounds (VOCs) and a DusTrak II and visual observations for dust particulate matter.
  - Upwind Background/Pre-Work Conditions
    - PID: 0.0 ppm
    - DustTrak: 0.005 ug/m^3
  - Maximum Downwind Work Conditions
    - PID: 0.0 ppm
    - DustTrak: 0.038 ug/m^3

- No 15-minute average concentrations of VOCs or total particulates exceeded the action levels throughout the day. No visible dust or odors were observed leaving the site perimeter.

Activities Planned for Coming Week:

- Lakewood will continue implementing the Remedial Investigation including soil borings, monitoring well installation and soil vapor point installation.

DAILY FIELD REPORT

Site Map:

CAMP Station

Site Photographs:

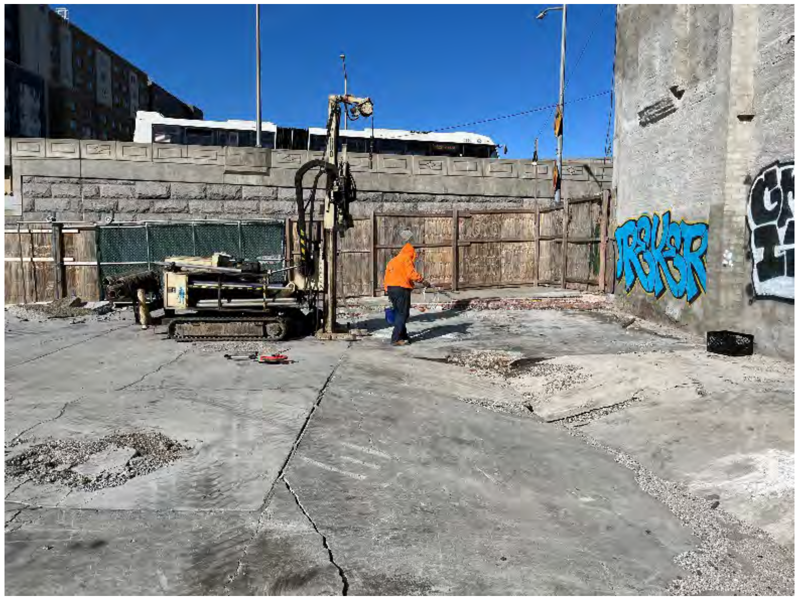


Photo 1: View of drilling activities at SB/SV-02, facing west.

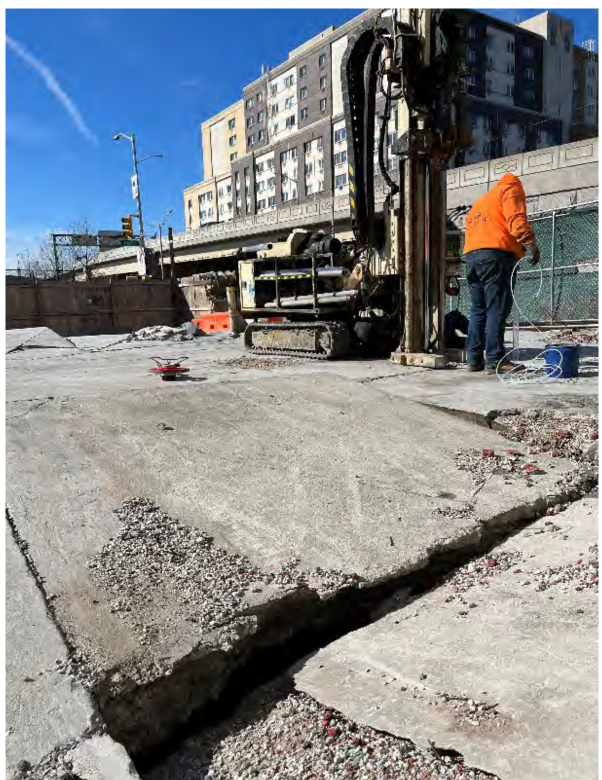


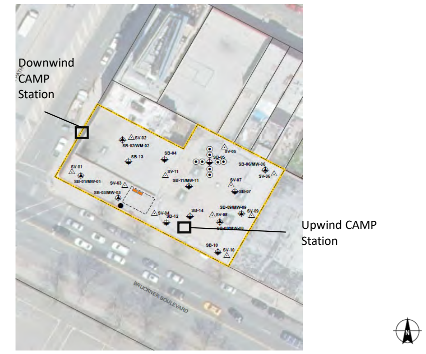
Photo 2: View of vapor point installation at SV-02, facing southwest.

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Date:	2/15/2023
Personnel:	P. DiNardo, H. Russell
Weather:	Sunny
Humidity:	72%
Temperature:	44-56 F
Wind Direction:	North

PID Background (ppm): 0.0
DustTrak Background (ug/m3): 0.005

Site Map:



Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
730	0.005	0.008	0.0	0.0	N	
745	0.007	0.009	0.0	0.0	N	
800	0.008	0.019	0.0	0.0	N	
815	0.005	0.034	0.0	0.0	N	
830	0.007	0.012	0.0	0.0	N	
845	0.005	0.026	0.0	0.0	N	
900	0.005	0.017	0.0	0.0	N	
915	0.007	0.032	0.0	0.0	N	
930	0.010	0.012	0.0	0.0	N	
945	0.010	0.012	0.0	0.0	N	
1000	0.010	0.028	0.0	0.0	N	
1015	0.006	0.022	0.0	0.0	N	
1030	0.009	0.028	0.0	0.0	N	
1045	0.010	0.014	0.0	0.0	N	
1100	0.010	0.006	0.0	0.0	N	
1115	0.006	0.017	0.0	0.0	N	
1130	0.006	0.009	0.0	0.0	N	
1145	0.008	0.020	0.0	0.0	N	
1200	0.005	0.018	0.0	0.0	N	
1215	0.010	0.023	0.0	0.0	N	
1230	0.007	0.022	0.0	0.0	N	
1245	0.010	0.031	0.0	0.0	N	
1300	0.010	0.021	0.0	0.0	N	
1315	0.007	0.038	0.0	0.0	N	

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
1330	0.006	0.008	0.0	0.0	N	
1345	0.010	0.009	0.0	0.0	N	
1400	0.005	0.019	0.0	0.0	N	
1415	0.007	0.014	0.0	0.0	N	
1430	0.008	0.013	0.0	0.0	N	
1445	0.008	0.011	0.0	0.0	N	
1500	0.007	0.008	0.0	0.0	N	

DAILY FIELD REPORT

Project	Former Fiedler Waterproofing & Masonry Site	Report No.	004
NYSDEC BCP Site	C203160	Date	2/16/2023
Location	91 Bruckner Boulevard, Bronx, NY	File No.	0204520
Client	91 Bruckner Blvd LLC	Temperature	52-63°F
Contractor	Lakewood Environmental Services Corp (Lakewood)	Wind Direction	East
Weather	Partly Cloudy	Personnel on Site	P. DiNardo, H. Russell
Humidity	67%	Time on Site	07:00-15:00

Haley & Aldrich of New York (Haley & Aldrich) was present to document the implementation of the Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site BCP Site C203160, located at 91 Bruckner Boulevard, Bronx, NY. Site Observations are summarized below.

Daily Observations:

- Haley & Aldrich field personnel performed community air monitoring during the implementation of the activities in the approved Remedial Investigation Work Plan
- Lakewood completed installation of 1 monitoring well, MW-11, screening from 13 to 23 ft bgs.
- Lakewood completed installation of 2 soil vapor points (SV-07 and SV-09) to 12-14 ft bgs

Samples Collected:

- Soil vapor samples were collected from SV-06, SV-07, SV-08, and SV-09 in accordance with the RIWP
- All samples were submitted in a cooler via courier to Alpha Analytical Laboratories, Inc. in Westborough, MA for analyses in accordance with the RIWP

CAMP Activities:

- Haley & Aldrich performed community air monitoring collecting upwind background readings and at a downwind location during ground-intrusive work. Community air monitoring included a MiniRae 3000 photoionization detector (PID) and olfactory observations to monitor volatile organic compounds (VOCs) and a DusTrak II and visual observations for dust particulate matter.
    - Upwind Background/Pre-Work Conditions
        - PID: 0.0 ppm
        - DustTrak: 0.005 ug/m^3
    - Maximum Downwind Work Conditions
        - PID: 0.0 ppm
        - DustTrak: 0.043 ug/m^3
- No 15-minute average concentrations of VOCs or total particulates exceeded the action levels throughout the day. No visible dust or odors were observed leaving the site perimeter.

Activities Planned for Coming Week:

- Lakewood will continue implementing the Remedial Investigation including soil borings, monitoring well installation and soil vapor point installation.

DAILY FIELD REPORT

Site Map:

CAMP Station

Site Photographs:

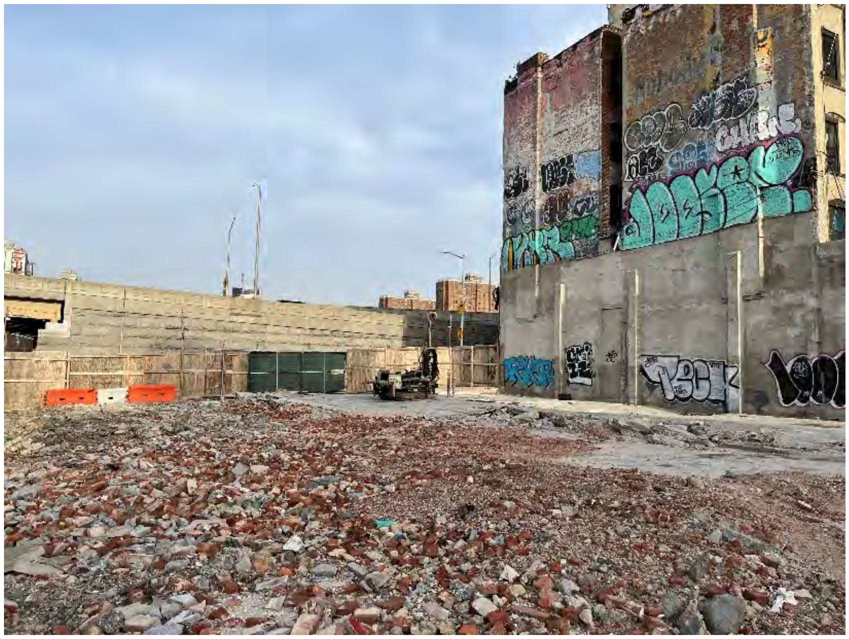


Photo 1: View of drilling activities, facing west.

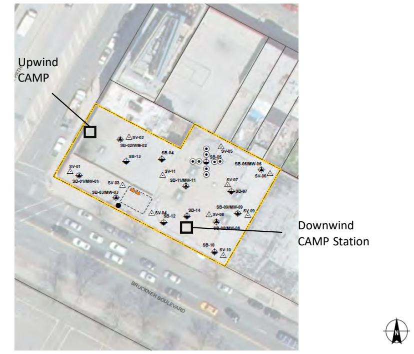
Photo 2: Soil vapor sample collection.

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Date:	2/16/2023
Personnel:	P. DiNardo, H. Russell
Weather:	Sunny
Humidity:	67%
Temperature:	52-63 F
Wind Direction:	East

PID Background (ppm): 0.0
DustTrak Background (ug/m3): 0.005

Site Map:



Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
730	0.005	0.009	0.0	0.0	N	
745	0.006	0.007	0.0	0.0	N	
800	0.009	0.014	0.0	0.0	N	
815	0.007	0.043	0.0	0.0	N	
830	0.008	0.026	0.0	0.0	N	
845	0.009	0.024	0.0	0.0	N	
900	0.010	0.010	0.0	0.0	N	
915	0.008	0.010	0.0	0.0	N	
930	0.008	0.033	0.0	0.0	N	
945	0.007	0.037	0.0	0.0	N	
1000	0.007	0.023	0.0	0.0	N	
1015	0.010	0.012	0.0	0.0	N	
1030	0.010	0.018	0.0	0.0	N	
1045	0.008	0.018	0.0	0.0	N	
1100	0.006	0.011	0.0	0.0	N	
1115	0.005	0.010	0.0	0.0	N	
1130	0.006	0.030	0.0	0.0	N	
1145	0.006	0.029	0.0	0.0	N	
1200	0.009	0.037	0.0	0.0	N	
1215	0.007	0.026	0.0	0.0	N	
1230	0.008	0.011	0.0	0.0	N	
1245	0.009	0.018	0.0	0.0	N	
1300	0.009	0.013	0.0	0.0	N	
1315	0.006	0.023	0.0	0.0	N	

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
1330	0.007	0.012	0.0	0.0	N	
1345	0.010	0.022	0.0	0.0	N	
1400	0.007	0.018	0.0	0.0	N	
1415	0.005	0.019	0.0	0.0	N	
1430	0.006	0.027	0.0	0.0	N	
1445	0.008	0.009	0.0	0.0	N	
1500	0.006	0.007	0.0	0.0	N	

DAILY FIELD REPORT

Project	Former Fiedler Waterproofing & Masonry Site	Report No.	005
NYSDEC BCP Site	C203160	Date	2/17/2023
Location	91 Bruckner Boulevard, Bronx, NY	File No.	0204520
Client	91 Bruckner Blvd LLC	Temperature	45-55°F
Contractor	Lakewood Environmental Services Corp (Lakewood)	Wind Direction	Northeast
Weather	Rain	Personnel on Site	P. DiNardo, H. Russell
Humidity	95%	Time on Site	07:00-15:00

Haley & Aldrich of New York (Haley & Aldrich) was present to document the implementation of the Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site BCP Site C203160, located at 91 Bruckner Boulevard, Bronx, NY. Site Observations are summarized below.

Daily Observations:

- Lakewood completed installation of 3 monitoring wells, MW-3, MW-6, and MW-11, screening from 15 to 25 ft bgs.

Samples Collected:

- 1 Field Blank
- 1 Trip Blank
- All samples were submitted in a cooler via courier to Alpha Analytical Laboratories, Inc. in Westborough, MA for analyses in accordance with the RIWP

CAMP Activities:

- Haley & Aldrich performed visual and olfactory air monitoring due to steady rain throughout the work day.
- No visible dust or odors were observed leaving the site perimeter.

Activities Planned for Coming Week:

- Lakewood will continue implementing the Remedial Investigation with monitoring well installation.

DAILY FIELD REPORT

Site Map:

Note: Visual and olfactory air monitoring conducted due to steady rain.

Site Photographs:

Photo 1: View of drilling activities and monitoring well installation, facing northeast.

Photo 2: View of drilling activities, facing north.

DAILY FIELD REPORT

Project	Former Fiedler Waterproofing & Masonry Site	Report No.	006
NYSDEC BCP Site	C203160	Date	2/20/2023
Location	91 Bruckner Boulevard, Bronx, NY	File No.	0204520
Client	91 Bruckner Blvd LLC	Temperature	42-60°F
Contractor	Lakewood Environmental Services Corp (Lakewood)	Wind Direction	Northeast
Weather	Sunny	Personnel on Site	P. DiNardo
Humidity	93%	Time on Site	07:00-15:00

Haley & Aldrich of New York (Haley & Aldrich) was present to document the implementation of the Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site BCP Site C203160, located at 91 Bruckner Boulevard, Bronx, NY. Site observations are summarized below.

Daily Observations:

- Haley & Aldrich field personnel performed community air monitoring during the implementation of the activities in the approved Remedial Investigation Work Plan
- Lakewood completed installation of 2 monitoring wells, MW-2 and MW-9.

Samples Collected:

- No samples were collected.

CAMP Activities:

- Haley & Aldrich performed community air monitoring collecting upwind background readings and at a downwind location during ground-intrusive work. Community air monitoring included a MiniRae 3000 photoionization detector (PID) and olfactory observations to monitor volatile organic compounds (VOCs) and a DusTrak II and visual observations for dust particulate matter.
    - Upwind Background/Pre-Work Conditions
        - PID: 0.0 ppm
        - DustTrak: 0.006 ug/m^3
    - Maximum Downwind Work Conditions
        - PID: 0.0 ppm
        - DustTrak: 0.036 ug/m^3
- No 15-minute average concentrations of VOCs or total particulates exceeded the action levels throughout the day. No visible dust or odors were observed leaving the site perimeter.

Activities Planned for Coming Week:

- Surveying of the installed monitoring wells and groundwater sampling

DAILY FIELD REPORT

Site Map:

CAMP Station

DAILY FIELD REPORT

Site Photographs:

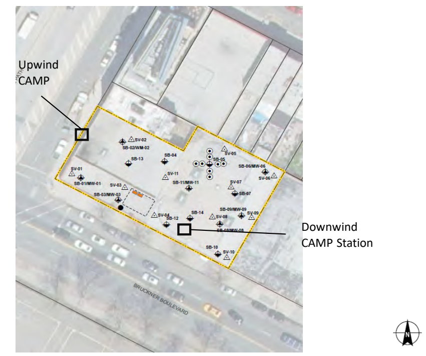
Photo 1: View of installed monitoring well and drilling activities, facing south.

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Date: 2/20/2023
Personnel: P. DiNardo
Weather: Sunny
Humidity: 93%
Temperature: 42-60 F
Wind Direction: Northeast

PID Background (ppm): 0.0
DustTrak Background (ug/m3): 0.006

Site Map:



Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
730	0.008	0.011	0.0	0.0	N	
745	0.009	0.028	0.0	0.0	N	
800	0.008	0.025	0.0	0.0	N	
815	0.007	0.034	0.0	0.0	N	
830	0.007	0.013	0.0	0.0	N	
845	0.008	0.026	0.0	0.0	N	
900	0.010	0.017	0.0	0.0	N	
915	0.010	0.024	0.0	0.0	N	
930	0.010	0.022	0.0	0.0	N	
945	0.011	0.028	0.0	0.0	N	
1000	0.008	0.009	0.0	0.0	N	
1015	0.006	0.011	0.0	0.0	N	
1030	0.008	0.020	0.0	0.0	N	
1045	0.010	0.019	0.0	0.0	N	
1100	0.009	0.027	0.0	0.0	N	
1115	0.011	0.023	0.0	0.0	N	
1130	0.009	0.031	0.0	0.0	N	
1145	0.010	0.036	0.0	0.0	N	
1200	0.009	0.019	0.0	0.0	N	
1215	0.009	0.028	0.0	0.0	N	
1230	0.007	0.030	0.0	0.0	N	
1245	0.010	0.021	0.0	0.0	N	
1300	0.011	0.029	0.0	0.0	N	
1315	0.006	0.020	0.0	0.0	N	

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
1330	0.009	0.034	0.0	0.0	N	
1345	0.011	0.009	0.0	0.0	N	
1400	0.009	0.009	0.0	0.0	N	
1415	0.007	0.015	0.0	0.0	N	
1430	0.006	0.013	0.0	0.0	N	
1445	0.008	0.016	0.0	0.0	N	
1500	0.006	0.009	0.0	0.0	N	

DAILY FIELD REPORT

Project	Former Fiedler Waterproofing & Masonry Site	**Report No.**	007
NYSDEC BCP Site	C203160	**Date**	2/24/2023
Location	91 Bruckner Boulevard, Bronx, NY	**File No.**	0204520
Client	91 Bruckner Blvd LLC	**Temperature**	35-46°F
Contractor	DPK Surveying (DPK)	**Wind Direction**	Southeast
Weather	Sunny	**Personnel on Site**	P. DiNardo, N. Manzione
Humidity	47%	**Time on Site**	07:00-13:30

Haley & Aldrich of New York (Haley & Aldrich) was present to document the implementation of the Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site BCP Site C203160, located at 91 Bruckner Boulevard, Bronx, NY. Site observations are summarized below.

Daily Observations:

- DPK Surveying was onsite surveying the locations of the 7 monitoring wells on Site.
- Synoptic round of depth to water measurements was taken from monitoring wells on Site.
- One monitoring well, MW-1, was sampled in accordance with the RIWP.

Samples Collected:

- MW-1

CAMP Activities:

- Haley & Aldrich did not perform community air monitoring as no ground intrusive activities were performed.
- No visible dust or odors were observed leaving the site perimeter.

Activities Planned for Coming Week:

- Groundwater sampling of the remaining 6 monitoring wells.

DAILY FIELD REPORT

Site Map:

Site Photographs:

Photo 1: Sampling of MW-1.

DAILY FIELD REPORT

Project	Former Fiedler Waterproofing & Masonry Site	Report No.	008
NYSDEC BCP Site	C203160	Date	2/27/2023
Location	91 Bruckner Boulevard, Bronx, NY	File No.	0204520
Client	91 Bruckner Blvd LLC	Temperature	35-43°F
Contractor	Lakewood Environmental Services Corp (Lakewood)	Wind Direction	South
Weather	Partly Cloudy	Personnel on Site	P. DiNardo, N. Manzione
Humidity	43%	Time on Site	07:00-17:30

Haley & Aldrich of New York (Haley & Aldrich) was present to document the implementation of the Remedial Investigation Work Plan (RIWP) for the Former Fiedler Waterproofing & Masonry Site BCP Site C203160, located at 91 Bruckner Boulevard, Bronx, NY. Site observations are summarized below.

Daily Observations:

- Haley & Aldrich field personnel performed community air monitoring during the implementation of the ground intrusive activities.
- Haley & Aldrich collected samples from five monitoring wells, MW-02, MW-03, MW-06, MW-08, and MW-11, in accordance with the RIWP.
- Lakewood installed 5-foot soil borings on the eastern half of the Site to further investigate potential fill impacts on Site.

Samples Collected:

- Soil samples were collected from additional soil boring locations SB-15, SB-16, and SB-17.
- Groundwater samples were collected from monitoring wells MW-02, MW-03, MW-06, MW-08, and MW-11. MW-09 was found to be dry.

CAMP Activities:

- Haley & Aldrich performed community air monitoring collecting upwind background readings and at a downwind location during ground-intrusive work. Community air monitoring included a MiniRae 3000 photoionization detector (PID) and olfactory observations to monitor volatile organic compounds (VOCs) and a DusTrak II and visual observations for dust particulate matter.
    - Upwind Background/Pre-Work Conditions
        - PID: 0.0 ppm
        - DustTrak: 0.009 ug/m^3
    - Maximum Downwind Work Conditions
        - PID: 0.0 ppm
        - DustTrak: 0.029 ug/m^3
- No 15-minute average concentrations of VOCs or total particulates exceeded the action levels throughout the day. No visible dust or odors were observed leaving the site perimeter.

Activities Planned for Coming Week:

- None, onsite Remedial Investigation Work Plan activities have been completed.

DAILY FIELD REPORT

Site Map:

CAMP Station

DAILY FIELD REPORT

Site Photographs:

Photo 1: View of drilling activities, facing north.

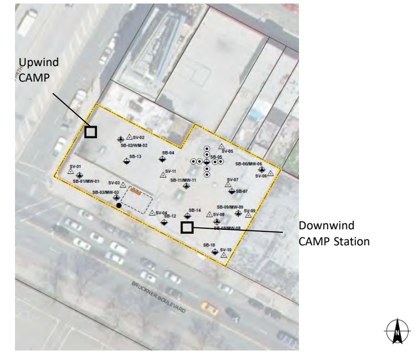
Photo 2: View of groundwater sampling.

NYSDEC Site C203160
91 Bruckner Boulevard, Bronx, NY
Project No. 0204520
Daily Air Monitoring Log

Date:	2/27/2023
Personnel:	P. DiNardo, N. Manzione
Weather:	Partly Cloudy
Humidity:	43%
Temperature:	35-43 F
Wind Direction:	South

PID Background (ppm): 0.0
DustTrak Background (ug/m3): 0.009

Site Map:



Time	Dustrak (mg/m3)	Dustrak (mg/m3)	PID (ppm)	PID (ppm)	Odors (Y/N)	Notes/Comments
	Upwind	Downwind	Upwind	Downwind		
730	0.013	0.015	0.0	0.0	N	
745	0.009	0.014	0.0	0.0	N	
800	0.010	0.023	0.0	0.0	N	
815	0.013	0.026	0.0	0.0	N	
830	0.012	0.022	0.0	0.0	N	
845	0.009	0.012	0.0	0.0	N	
900	0.010	0.023	0.0	0.0	N	
915	0.010	0.029	0.0	0.0	N	
930	0.010	0.024	0.0	0.0	N	
945	0.009	0.025	0.0	0.0	N	
1000	0.010	0.019	0.0	0.0	N	
1015	0.013	0.027	0.0	0.0	N	
1030	0.013	0.013	0.0	0.0	N	