HALEY & ALDRICH OF NEW YORK
213 W. 35th Street
7th Floor
New York, NY 10001
646.277.5685

SITE MANAGEMENT PLAN
2864 ATLANTIC AVENUE REDEVELOPMENT
KINGS COUNTY
BROOKLYN, NEW YORK
BLOCK 3965 LOT 11
NYSDEC BCP SITE NUMBER: C224349

Prepared by
H &A of New York, LLP
213 West 35th Street
7th Floor
New York, New York 10001

Prepared for
2864 Atlantic Realty LLC
40 Oser Avenue, Suite 4
Hauppauge, NY 11788

Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

File No. 0205126-001
December 2023

Certification Statement

I, Scott Underhill, certify that I am currently a NYS registered Professional Engineer and that this Site Management Plan was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10).

Scott Underhill, P.E. *December 21, 2023*

Date

Executive Summary

2864 Atlantic Realty LLC (the Volunteer) has remediated a 0.415-acre (±18,100 ft2) property known as 2864 Atlantic Avenue Redevelopment, designated under Brownfield Cleanup Program (BCP) Site No. C224349. The 2864 Atlantic Avenue Redevelopment site (hereafter referred to as, "the site") is situated at 2864 Atlantic Avenue in Kings County, New York on Lot 11, Block 3965 of the NYC Tax Map. Initial soil remediation activities were carried out as per the March 2022 approved Interim Remedial Measures Work Plan (IRMWP). Subsequent site remediation addressing both soil and groundwater was conducted as per the February 2023 approved Remedial Action Work Plan (RAWP) and Decision Document. Additional investigations, workplans, and reports were submitted to the New York State Department of Environmental Conservation (NYSDEC) between 2021 and 2023.

The following provides a brief summary of the controls implemented for the Site, as well as the inspections, monitoring, maintenance, and reporting activities required by this Site Management Plan:

Site Identification: BCP Site #: C224349
2864 Atlantic Avenue Redevelopment
2864 Atlantic Avenue
Brooklyn, NY 11207

Institutional Controls:	1. The property may be used for restricted residential, commercial, and industrial use pending results of the Groundwater Monitoring and Soil Vapor Intrusion Evaluation and NYSDEC approval of easement and SMP termination
	2. Institutional Controls include an Environmental Easement and this Site Management Plan
Engineering Controls:	1. Passive Sub-Slab Depressurization System (SSDS) that will act as an engineering control should it be made an active SSDS upon DOH and DEC request.

Monitoring:	
1. Groundwater Monitoring Wells MW-1, MW-2, MW-3, MW-4, and MW-5	Quarterly
2. Soil Vapor Intrusion Evaluation	As required
Reporting:	
1. Groundwater Monitoring Data	Quarterly, for at least one year
2. Soil Vapor Intrusion Evaluation	As required
3. Periodic Review Report	16 Months after approval of the SMP

Further descriptions of the above requirements are provided in detail in the latter sections of this Site Management Plan.

Certification Statement i
Executive Summary ii
List of In-Text Tables v

Table of Contents **Page**

List of Tables **v**
List of Figures **v**
List of Appendices **vi**
List of Acronyms and Abbreviations **vii**

1. Introduction **1**

1.1 GENERAL 1
1.2 REVISIONS 2
1.3 NOTIFICATIONS 2

2. Summary of Previous Investigations and Remedial Actions **4**

2.1 SITE LOCATION AND DESCRIPTION 4
2.2 PHYSICAL SETTING 4
2.2.1 Land Use 4
2.2.2 Geology 4
2.2.3 Hydrogeology 5
2.3 INVESTIGATION AND REMEDIAL HISTORY 5
2.3.1 Interim Remedial Measures 10
2.4 REMEDIAL ACTION OBJECTIVES 11
2.4.1 Groundwater 11
2.4.2 Soil 11
2.4.3 Soil Vapor 11
2.5 SUMMARY OF REMEDIAL ACTIONS 11
2.6 REMAINING CONTAMINATION 12
2.6.1 Groundwater 13

3. Institutional and Engineering Control Plan **14**

3.1 GENERAL 14
3.2 INSTITUTIONAL CONTROLS 14
3.3 ENGINEERING CONTROLS 15
3.3.1 Sub-Slab Depressurization System 15
3.3.2 Media Monitoring Program 15
3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems 16

4. Monitoring and Sampling Plan **18**

4.1 GENERAL 18
4.2 SITE-WIDE INSPECTION 18
4.3 POST-REMEDIATION MEDIA MONITORING AND SAMPLING 19
4.3.1 Groundwater Sampling 20
4.3.2 Soil Vapor Intrusion Evaluation 22
4.3.3 Monitoring and Sampling Protocol 22

Table of Contents **Page**

5. Operations and Maintenance Plan 23

5.1 GENERAL 23
5.2 REMEDIAL SYSTEM PERFORMANCE CRITERIA 23
5.3 SSDS OPERATION AND MAINTENANCE 23
5.3.1 ROUTINE SYSTEM OPERATION AND MAINTENANCE 23
5.3.2 NON-ROUTINE OPERATION AND MAINTENANCE 24
5.3.3 FIRE SAFETY 24

6. Periodic Assessments/Evaluations 25

6.1 CLIMATE CHANGE VULNERABILITY ASSESSMENT 25
6.2 GREEN REMEDIATION EVALUATION 25
6.2.1 Timing Of Green Remediation Evaluations 25
6.2.2 Remediation Systems 25
6.2.3 Building Operations 26
6.3 REMEDIAL SYSTEM OPTIMIZATION 26

7. Reporting Requirements 27

7.1 SITE MANAGEMENT REPORTS 27
7.2 PERIODIC REVIEW REPORT 28
7.2.1 Certification of Institutional and Engineering Controls 29
7.3 CORRECTIVE MEASURES WORK PLAN 30

8. References 32

List of In-Text Tables

In-Text Table No.	Title
I	Notifications
II	Site Contact List
III	Sitewide Inspection for Engineering Controls
IV	Post Remediation Sampling Requirements and Schedule
V	Monitoring Well Construction Details
VI	Schedule of Interim Monitoring/Inspection Reports

List of Tables

Table No.	Title
I	Groundwater Elevation Data
II	Remaining Contamination in Groundwater

List of Figures

Figure No.	Title
1	Site Location Map
2	Groundwater Contour Map
4	Remaining Contamination in Groundwater
5	Passive Sub-Slab Depressurization System As-Built
6	Geologic Cross Section

List of Appendices

Appendix	Title
A	Environmental Easement and Site Survey
B	Excavation Work Plan
C	As-Built Surveys, Vapor Barrier Manufacturer's Specifications
D	QAPP
E	Site Management Forms
F	Monitoring Well Boring and Construction Logs
G	List of Site Contacts
H	Responsibilities of Owner and Remedial Party
I	HASP

List of Acronyms and Abbreviations

AS	Air Sparging
ASP	Analytical Services Protocol
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CAMP	Community Air Monitoring Plan
C/D	Construction and Demolition
CFR	Code of Federal Regulation
CLP	Contract Laboratory Program
COC	Certificate of Completion
CO2	Carbon Dioxide
CP	Commissioner Policy
DER	Division of Environmental Remediation
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Greenhouse Gas
GWE&T	Groundwater Extraction and Treatment
HASP	Health and Safety Plan
IC	Institutional Control
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYCRR	New York Codes, Rules, and Regulations
O&M	Operation and Maintenance
OM&M	Operations, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
P.E. or PE	Professional Engineer

PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
RP	Remedial Party
RSO	Remedial System Optimization
SAC	State Assistance Contract
SCG	Standards, Criteria and Guidelines
SCO	Soil Cleanup Objective
SMP	Site Management Plan
SOP	Standard Operating Procedures
SOW	Statement of Work
SPDES	State Pollutant Discharge Elimination System
SSDS	Sub-slab Depressurization System
SVE	Soil Vapor Extraction
SVI	Soil Vapor Intrusion
TAL	Target Analyte List
TCL	Target Compound List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VCA	Voluntary Cleanup Agreement
VCP	Voluntary Cleanup Program

1. Introduction

1.1 GENERAL

This Site Management Plan (SMP) is a required element of the remedial program for the 2864 Atlantic Avenue Redevelopment site located in Brooklyn, New York (hereinafter referred to as the "Site"). See Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C224349, which is administrated by the New York State Department of Environmental Conservation (NYSDEC). located at 2864 Atlantic Avenue, Brooklyn NY, 11207, identified on the New York City Tax Map as Brooklyn borough Tax Block 3965, Lot 11.

2864 Atlantic Realty LLC entered into a Brownfield Cleanup Agreement (BCA) with the NYSDEC on 15 March 2022 to remediate the site as a Volunteer. A BCA Amendment was issued on 08 June 2022, which documented the transfer of ownership of the Site from Speedway LLC to 2864 Atlantic Avenue LLC. A Site Location map is provided as Figure 1. A figure showing the boundaries of this Site is provided in Figure 2. The boundaries of the site are more fully described in the metes and bounds site description that is part of the Environmental Easement provided in Appendix A.

After completion of the remedial work, some contamination was left at the Site, which is hereafter referred to as "remaining contamination". Institutional Controls (ICs), by the way of post-remedial groundwater sampling/monitoring, have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement (EE) package was submitted to NYSDEC on 31 May 2023 and recorded with the Kings County Clerk on 10 November 2023. The EE will require compliance with this SMP and the ICs placed on the Site. Upon the completion of the post-remedial groundwater sampling and evaluation of the results, a determination will be made if the ICs can be lifted or become permanent.

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

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the EE. Failure to properly implement the SMP is a violation of the EE, which is grounds for revocation of the Certificate of Completion (COC); and
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6 New York Codes, Rules, and Regulations (NYCRR) Part 375 and the BCA, (Index # C224349-03-22; Site No. C224349) for the site, and thereby subject to applicable penalties.

All reports associated with the Site can be viewed by contacting the NYSDEC or its successor agency managing environmental issues in New York State. A list of contacts for persons involved with the Site is provided in In-Text Tables I and II of this SMP.

This SMP was prepared by H & A of New York LLP d/b/o Haley & Aldrich of New York (Haley & Aldrich), on behalf of 2864 Atlantic Realty LLC (the Volunteer) in accordance with the requirements of the NYSDEC's DER-10 ("Technical Guidance for Site Investigation and Remediation"), dated May 2010, and the guidelines provided by the NYSDEC. This SMP addresses the means for implementing the ICs that are required by the EE for the site.

1.2 REVISIONS

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

1.3 NOTIFICATIONS

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

1. 60-day advance notice of any proposed changes in Site use that are required under the terms of the BCA, 6 NYCRR Part 375 and/or Environmental Conservation Law.
2. 7-day advance notice of any field activity associated with the remedial program.
3. 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan. If the ground-intrusive activity qualifies as a change of use as defined in 6 NYCRR Part 375, the above mentioned 60-day advance notice is also required.
4. Notice within 48 hours of any damage or defect to the foundation, structures or EC that reduces or has the potential to reduce the effectiveness of an EC, and likewise, any action to be taken to mitigate the damage or defect.
5. Notice within 48 hours of any non-routine maintenance activities.
6. Verbal notice by noon of the following day of any emergency, such as a fire; flood; or earthquake that reduces or has the potential to reduce the effectiveness of ECs in place at the site, with written confirmation within 7 days that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.
7. Follow-up status reports on actions taken to respond to any emergency event requiring ongoing responsive action submitted to the NYSDEC within 45 days describing and documenting actions taken to restore the effectiveness of the ECs.

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

1. At least 60 days prior to the change, the NYSDEC will be notified in writing of the proposed change. This will include a certification that the prospective purchaser/Remedial Party has been provided with a copy of the BCA, and all approved work plans and reports, including this SMP.
2. Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

In-Text Table I below includes contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information. Site-related contact information is provided in In-Text Table II. A full listing of site-related and adjacent property owner contact information is provided in Appendix G.

In-Text Table I: Notifications*

Regulator	Contact Name	Contact Title	Required Notification **	Contact Number	Contact Email
NYSDEC	Madeleine Babick	Project Manager	All Notifications	718-482-4992	madeleine.babick@dec.ny.gov
	Cris-Sandra Maycock	Section Chief	All Notifications	718-482-4679	cris-sandra.maycock@dec.ny.gov
	Kelly Lewandowski	Chief, Site Control	Notifications 1 and 8	518-402-9569	kelly.lewandowski@dec.ny.gov
NYSDOH	Kristin Kulow	Project Manager	Notifications 4, 6, and 7	607-353-4335	kristin.kulow@health.ny.gov

* Note: Notifications are subject to change and will be updated as necessary.
** Note: Numbers in this column reference the numbered bullets in the notification list in this section.

In-Text Table II: Site Contact List

Company	Contact Name	Title	Contact Number	Contact Email
Haley & Aldrich	James Bellew	Principal	646-277-5686	jbellew@haleyaldrich.com
	Scott Underhill, P.E.	Remediation Engineer	518-396-7638	sunderhill@haleyaldrich.com
	Matthew Levy	Project Manager	646-893-4733	mlevy@haleyaldrich.com
	Philip DiNardo	Field Lead	646-568-9370	pdinardo@haleyaldrich.com
2864 Atlantic Realty LLC	Jacob Kohn	Member	718-963-0536	kohnjacob@gmail.com
Sive, Paget & Riesel PC	Christine Leas	Attorney	646-378-7267	cleas@sprlaw.com

2. Summary of Previous Investigations and Remedial Actions

2.1 SITE LOCATION AND DESCRIPTION

The Site is located in Brooklyn, Kings County, New York and is identified as Section 3, Block 3965, and Lot 11 on the New York City Tax Map. The Site is an irregularly shaped, vacant lot totaling approximately 18,111-square-feet in size (approximately 0.415 acres). The Site is bounded by Atlantic Avenue followed by multiple mixed use low-rise residential buildings to the north, Jerome Street followed by low-rise residential buildings to the east, low-rise residential buildings to the south, and Barbey Street followed by a vacant 3-story industrial use building to the west (see Figure 2). The boundaries of the Site are more fully described in Appendix A – Environmental Easement. The owner of this site parcel at the time of issuance of this SMP is 2864 Atlantic Realty LLC.

2.2 PHYSICAL SETTING

2.2.1 Land Use

The Site consists of a nine-story residential apartment building with a cellar (under construction). The building encompasses approximately 100% of the lot footprint and extends 13 feet below ground surface (ft bgs) and the proposed gross square footage of the new development is 154,281 square feet. According to the New York City Planning Commission Zoning Map 17c, the Site is located within a residential and commercial zoning district (C2-4 and R8A) with Mandatory Inclusionary Housing (MIH), and is currently utilized for mixed-use residential/commercial uses. The residential portion of the building will contain approximately 178 dwelling units, of which about 36 units will be designated as affordable housing. The cellar level will be utilized as a parking garage and compactor space. The first floor will be occupied by residential lobby, parking garage, bicycle storage, and retail stores. The second floor and up will be residential units. The Development use is consistent with existing zoning for the property.

The properties adjoining and surrounding the Site primarily include mixed-use commercial and residential properties. The Site is bounded by Atlantic Avenue followed by multiple mixed use low-rise residential buildings to the north, Jerome Street followed by low-rise residential buildings to the east, low-rise residential buildings to the south, and Barbey Street followed by a vacant 3-story industrial use building to the west.

2.2.2 Geology

Based on field observations from the RI, the Site is underlain by a layer of urban fill generally consisting of dense to loose, dark brown to brown to tan/gray, medium to fine sand with silt and clay and varying amounts of loose gravel, rock, pebbles, brick, concrete and asphalt was observed from surface grade to depths extending approximately 5 to 7 ft bgs in each soil boring. The urban fill layer was underlain by an apparent native layer consisting of loose, brown to tan, coarse to fine sand with varying amounts of silt, clay, pebbles, and saturated constituents. The native interval was observed up to the terminus depth of each soil boring, ranging from 15 to 20 feet bgs. A geologic cross section is shown in Figure 5. Site specific boring logs are provided in Appendix F.

2.2.3 Hydrogeology

Based on Site-specific groundwater measurements, groundwater beneath the Site ranges from approximately 30.63 to 32.10 ft bgs. Groundwater flow beneath the Site is generally from northeast to southwest. A groundwater contour map is shown in Figure 3. Groundwater elevation data is provided in Table I. Groundwater monitoring well construction logs are provided in Appendix F.

2.3 INVESTIGATION AND REMEDIAL HISTORY

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8 – References.

The following reports were prepared for the Site:

1. Environmental Site Assessment Report (Geologic Service Corporation, July 1999)
2. Fourth Quarterly Update Report with Pilot Test (EnviroTrac Ltd., February 2009)
3. Revised Work Plan for Additional Air Sparge Wells (EnviroTrac Ltd., March 2009)
4. STRE Work Plan (EnviroTrac Ltd., March 2009)
5. First Quarterly Update Report with STRE Data (EnviroTrac Ltd., May 2010)
6. Second Quarterly Update Report with STRE Data (EnviroTrac Ltd., August 2010)
7. Fourth Quarterly Update Report (EnviroTrac Ltd., January 2019)
8. First Quarterly Update Report (EnviroTrac Ltd., May 2021)
9. Phase I Environmental Site Assessment (Haley & Aldrich, October 2021)
10. Limited Phase II Environmental Site Investigation Report (Haley & Aldrich, November 2021)
11. Limited Phase II Environmental Site Investigation Report (Haley & Aldrich, November 2021)
12. Remedial Investigation Report (Haley & Aldrich, September 2022)
13. Interim Remedial Measure Work Plan (Haley & Aldrich, March 2022)
14. Construction Completion Report for the Interim Remedial Measure (Haley & Aldrich, January 2023)
15. Remedial Action Work Plan (Haley & Aldrich, January 2023)
16. Decision Document (NYSDEC, February 2023)

A summary of environmental findings of these investigations is provided below.

Environmental Site Assessment Report **(Geologic Service Corporation, July 1999)**

In this report, Geologic Service Corporation summarizes the data and findings from the investigation performed at the Site between August 1998 and July 1999.

Underground Storage Tank (UST) closure/upgrade activities were conducted in August, September, and November of 1998 which included removal of three dispenser islands, remote fill ports, remote fill piping, and 38 single-walled steel USTs. Petroleum impacts were observed during UST removal, and NYSDEC Spill No. Spill No. 9830002 was reported on 06 August 1998. A total of 1,006 tons of soil was excavated and transported off-Site for thermal processing and recycling into hot mix asphalt. Following completion of closure activities, five new double-walled fiberglass vapor recovery lines were installed on-Site.

Following completion of UST closure and upgrade activities, four soil borings and four monitoring wells were installed for the collection of soil and groundwater samples. Soil analytical results were below NYSDEC Stars #1 Memo Guidance Values with the exception of one soil sample, SB-2, which identified a concentration of methyl tert-butyl ether (MTBE) at 25,210.5 parts per billion (ppb) (regulatory standard of 1,000 ppb). All four groundwater samples identified petroleum-based VOCs (including MTBE and BTEX compounds) in excess of NYSDEC Groundwater Quality Standards.

Fourth Quarterly Update Report with Pilot Test **(EnviroTrac Ltd., February 2009)**

This report prepared by EnviroTrac Ltd. summarizes the activities conducted at the Site between August 2008 to November 2008, which included: two short-term remediation events (STREs); gauging and sampling of seven monitoring wells; and installation of three air sparging wells. Groundwater analytical results indicated the following: a maximum combined concentration of BTEX of 6,041 ppb detected at MW-1; the concentration of benzene did not exceed 1.3 ppb in any groundwater sample collected; the concentration of xylene was more than 5,170 ppb in all groundwater samples collected; and MTBE was non-detect in all groundwater samples collected.

EnviroTrac Ltd. concluded that although residual BTEX concentrations remained in MW-1 and MW-6, the breakdown components of these compounds (mostly xylenes) indicated a more degraded, less mobile impact on the subsurface environment.

Due to the favorable results of the two STRE events, EnviroTrac Ltd. proposed to continue with these remediation efforts. A work plan to address the degraded impact in these wells was developed and submitted to the NYSDEC under separate cover to move this Site toward closure.

Revised Work Plan for Additional Air Sparge Wells **(EnviroTrac Ltd., March 2009)**

This revised work plan prepared by EnviroTrac Ltd. proposed the installation of additional air sparge wells to address residual BTEX levels beneath the Site. The work plan indicated that soil samples would be screened continuously during air sparge well installation activities, and two soil samples would be collected and submitted for the analysis of VOCs (plus MTBE) and SVOCs. Results from this investigation would be included in a subsequent report.

STRE Work Plan **(EnviroTrac Ltd., March 2009)**

This report summarizes correspondence between the NYSDEC, EnviroTrac, and Hess during a meeting that took place in October 2008. The report concluded that in reviewing the historical groundwater data for the STREs that were conducted at the Site in October 2008 and November 2008, a decrease in residual levels of ethylbenzene and xylenes in monitoring wells MW-4 and MW-6 was evident, especially in MW-6, which showed a ten-fold reduction in ethylbenzene concentrations (from 2,430 ppb to 240 ppb) and a three-fold decrease in xylenes (from 5,850 to 1,271 ppb). However, monitoring wells MW-1 and MW-5 identified slight increases in residual petroleum impacts even though the data obtained during these events confirmed an effective radius of influence (ROI) on all wells.

EnviroTrac Ltd. recommended conducting two additional quarterly groundwater sampling events.

Update Report with STRE Data **(EnviroTrac Ltd., May 2010)**

The first quarterly report summarizes the activities conducted at the Site between January 2010 to April 2010, which included performance of two STREs, gauging, and sampling of seven on-Site monitoring wells. Total benzene and MTBE were non-detect in the seven groundwater samples collected. Total BTEX concentrations ranged from non-detect in MW2, MW-3, and MW-7 to 3,620.7 ppb in MW-6.

Update Report with STRE Data **(EnviroTrac Ltd., August 2010)**

This report summarizes the activities conducted at the Site between April 2010 and June 2010, which included two STREs and gauging and sampling of seven monitoring wells. Groundwater analysis results indicated the following: a maximum BTEX concentration of 2,956.0 ppb was detected at MW-1; and neither benzene nor MTBE were detected in any of the groundwater samples collected.

EnviroTrac Ltd. proposed to continue conducting quarterly groundwater sampling events, with the next event scheduled for September 2010. An updated report summarizing these activities was submitted to NYSDEC in November 2010. Hess conducted STREs on select wells.

Update Report **(EnviroTrac Ltd., January 2019)**

This report summarizes the STRE monitoring well gauging events and groundwater sampling events that were performed at the Site in 2018. The results indicate a BTEX concentration of 1,874 ppb at MW-1. MTBE was not detected in any groundwater sample collected. The concentration of total VOCs ranged from 308.3 ppb to 4,179.1 ppb.

This report concludes with a recommendation to perform a sensitive receptor survey to be submitted under separate cover. Based on the results of the Sensitive Receptor Survey and depth to groundwater (32 to 33 ft), off-Site receptors were not considered a concern. However, in an effort to reduce contaminant mass and to obtain spill closure, EnviroTrac Ltd. proposed additional soil borings be advanced in the area of MW-1 to assess soil conditions and identify the vertical extent of impacts in this area. If minimal impacts were observed, spill closure would be requested; if significant impacts were observed, additional remedial wells would be installed to aid in localized remediation moving forward.

EnviroTrac Ltd. indicated that monthly STREs and quarterly groundwater sampling would continue and an updated report summarizing these activities was submitted to NYSDEC in May 2019.

***Update Report* (EnviroTrac Ltd., May 2021)**

This report summarizes the STREs, monitoring well gauging events, and groundwater sampling events that were performed at the Site between January 2021 and March 2021. The results indicated a maximum BTEX concentration of 352 ppb at MW-1. MTBE was not detected in any groundwater sample collected. The concentration of total VOCs ranged from 23.9 ppb to 1,080.9 ppb.

EnviroTrac indicates that quarterly groundwater sampling will continue, and an updated report summarizing activities completed from April through June 2021 will be submitted to NYSDEC in August 2021.

Phase I Environmental Site Assessment, October 2021, prepared by Haley & Aldrich

Haley & Aldrich of New York prepared a Phase I ESA in October 2021 for the Site to identify Recognized Environmental Conditions (RECs) in connection with the Site. As identified in the Phase I ESA, the Site was partially developed in the late 1800s with two stores and one residential building. By the early 1950s, the Site was partially redeveloped with a garage and two gasoline tanks. By 1965, the entire Site was occupied by a filling station that was developed with an overhead canopy and a one-story office building. The Site remained unchanged since approximately 1965 and actively operates as a filling station.

The Phase I ESA identified the following RECs associated with the Site:

1. Petroleum contamination at the Site - Regulatory records and previous reports identify the presence of petroleum-related contamination in groundwater at the Site associated with leaking USTs. The first petroleum-related impacts were reported in 1992; thereafter, investigative activities commenced in 1998 in response to the petroleum-impacted soil identified during a tank upgrade project. Since this time, additional spills have been reported, of which Spill Case 98-30002 is still active, due to petroleum releases impacting soil, groundwater, and soil vapor at the Site. In 2010, a soil vapor extraction (SVE) system was installed, and routine remedial/monitoring events (i.e., groundwater treatment, sampling, and gauging) commenced and continue, on a quarterly basis, to present-day.
2. Current and former use of the Site as a petroleum filling station/auto-related facility - Historic records indicate current and former use of the Site as a petroleum filling station/auto-related facility since the early 1950s. Impacts to soil and groundwater at the Site may be present due to the Site's history of petroleum-related operations and petroleum bulk storage.
3. Known contamination of hazardous materials at the upgradient, west-adjacent property – According to regulatory records, known contamination is present at a property located upgradient to the Site. This property, 2840 Atlantic Avenue, enrolled in the NYSDEC BCP in 2017. Investigations performed at the property revealed elevated concentrations of VOCs, SVOCs, and metals in groundwater and soil. Per- and polyfluoroalkyl substances were also detected in upgradient and downgradient monitoring wells on this property.

In addition, one Historic Recognized Environmental Condition (HREC) was identified in connection to closed spill cases associated with potential petroleum releases at the Site.

Limited Phase II Environmental Site Investigation Report, November 2021, prepared by Haley & Aldrich

Haley & Aldrich of New York completed a limited sampling event at the Site to investigate soil and soil vapor quality beneath the Site. The investigation was performed between 02 and 03 November 2021 and included installation of 11 soil borings to a maximum of 6 feet below grade surface, installation of two temporary soil vapor probes, and collection of soil and soil vapor samples. Urban fill generally consisting of brown to dark brown, coarse to medium sand with varying amounts of glass, gravel, brick, asphalt, and silt was observed from surface grade to approximately 2 to 4 ft bgs in each soil boring. The urban fill layer was underlain by a potential native layer consisting of brown to orange-brown coarse to fine sand with varying amounts of silt and gravel and intermittent clay lenses. In general, no apparent subsurface impacts were observed, including odors and staining, and PID readings of non-detect at 0.0 parts per million (ppm) were recorded. However, at B-10, surface soils (i.e., 0 to 2 ft bgs) exhibited a slight petroleum odor and PID readings up to a maximum of 20.1 ppm VOCs.

Seven SVOCs—benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene—were identified above RRSCOs in multiple shallow soil samples. Additionally, Methylphenol/4-Methylphenol was detected above UUSCOs, but below RRSCOs, in one shallow soil sample. Three VOCs, acetone, total xylenes, and 2-butanone were identified at concentrations above the UUSCO in one soil sample collected. Acetone was also detected in a second shallow soil sample above the UUSCO. Metals including lead and mercury were detected above RRSCOs, with copper and zinc identified above the UUSCOs.

Total VOC concentrations in soil vapor samples ranged from 83.044 micrograms per cubic meter (µg/m^3) in sample SV-1 to 18,546 µg/m^3 in SV-2. Total benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations ranged between 5.664 µg/m^3 in SV-1 to 998.8 µg/m^3 in SV-2. Tetrachloroethene PCE was detected in soil vapor sample SV-1 at a concentration of 34.2 µg/m^3 and carbon tetrachloride was detected in soil vapor sample SV-1 at a concentration of 2.13 µg/m^3. The high total VOC soil vapor concentrations are indicative of source material contamination that was not identified at the limited sample locations that have been analyzed to date.

Remedial Investigation Report, September 2022, prepared by Haley & Aldrich

The Remedial Investigation consisted of:

- Advancement of 14 soil borings up to 20 ft bgs, with samples collected from the top six inches immediately beneath the impervious Site cover (i.e., concrete slab), the historical fill interval or the proposed development depth (approximately 10 to 12) ft bgs, and from 18 to 20 ft bgs to document the vertical extent of impacted soil. A total of 42 soil samples were collected (plus quality assurance/quality control [QA/QC] samples) for laboratory analysis.
- Installation of ten (10), two-inch permanent groundwater monitoring wells to depths of between 45 to 50 ft bgs, and collection of 10 groundwater samples (plus QA/QC samples).
- Survey and gauging of monitoring wells to determine groundwater elevation and flow direction.
- Installation of ten (10) slab soil vapor points to 10 to 12 ft bgs sitewide and the collection of 10 soil vapor samples.

Two VOCs (Xylenes, Total and Acetone) were detected in up to two samples exceeding UUSCOs and PGWSCOs. Seven SVOCs, primarily PAHs, were detected at concentrations exceeding both the UUSCOs, RRSCOs, and/or PGWSCOs in up to three soil samples collected from historical fill material at depths

immediately below the impervious Site cover (0-to-6-inch interval). Pesticide concentrations did not exceed RRSCOs in soil samples analyzed. Four pesticides including, 4,4'-DDD, 4,4'-DDE, aldrin, and dieldrin were identified at concentrations exceeding UUSCOs in across two samples (SB-4_0-6" and SB-7_0-6"). Three metals were detected at concentrations exceeding the UUSCOs, RRSCOs, and/or PGWSCOs in up to nine soil samples collected from historical fill and native material at depths including from immediately below the impervious Site cover (0-6" interval) and between about 10 to 12 ft bgs in native material (SB-4, SB-08, and SB-12). PCBs were not detected above UUSCOs, RRSCOs or PGWSCOs in soil samples analyzed. Concentrations of PFOS or PFOA did not exceed the UU or RRU soil guidance values in any soil samples analyzed. Total PFOA/PFAS compounds detected ranged from 0.000049 mg/kg in SB-12_18-20 to 0.000687 mg/kg SB-5_0-6".

Fourteen VOCs were identified in up to eight groundwater samples (MW-01 through MW-07, and MW-10), at concentrations exceeding AWQS. Nine SVOCs, predominately PAHs, were identified in up to eight groundwater samples, MW-1 through MW-6, MW-9 and MW-10 as well as DUP2_20220414, at concentrations exceeding AWQS. PCBs were not detected above laboratory detection limits in groundwater samples analyzed. Four total metals (iron, lead, manganese, and sodium) and three dissolved metals (iron, manganese, and sodium) were identified in between one and ten groundwater samples as well as up to two duplicate samples at concentrations exceeding the AWQS. Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) were detected at concentrations exceeding the NYSDEC June 2021 guidance value of 0.01 µg/L in all ten groundwater samples collected. Total PFOA/PFAS concentrations in groundwater samples ranged from 0.0364 µg/L in MW-4 to 0.17 µg/L in MW-8, below the NYSDEC June 2021 guidance value of 0.5 µg/L.

Total VOC concentrations in soil vapor samples ranged from 168.28 µg/m^3 in sample SG-1 to 40,962.60 µg/m^3 in sample SG-7. Total benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations ranged from 15.21 µg/m^3 in sample SG-1 to 2236.56 µg/m^3 in sample SG-3.

2.3.1 Interim Remedial Measures

An Interim Remedial Measure (IRM) was completed at the Site in accordance with the Interim Remedial Measures Work Plan (IRMWP) dated March 2022 and approved by NYSDEC on 22 March 2022. The IRM activities have been documented in a Construction Completion Report (CCR) prepared by Haley & Aldrich. The CCR was approved by the NYSDEC in January 2023.

Selective demolition was performed to remove kiosks, canopies, storage sheds, product dispensers and pump islands. The UST field measured approximately 30 feet by 75 feet (IRM excavation) and was excavated to an approximate depth of 17 feet below sidewalk grade with an additional roughly 2,000-square feet area outside the UST field slope excavated as the support of excavation measure. A total of 276.80 tons of non-hazardous contaminated soils associated with the UST removal area were trucked off from the Site via NYSDEC Part 364-permitted vehicles and disposed at Clean Earth Carteret facility. Five USTs were cleaned, removed, and cut by Eastern Environmental Solutions, Inc. (Eastern). The NYSDEC PBS database has been updated to reflect that the USTs were closed and removed. The IRM excavation area was backfilled to Site grade surface with clean imported quarry stone from Tilcon – Mount Hope Quarry of Wharton, New Jersey.

A total of five confirmation samples were collected from the base IRM excavation area at 17 ft bgs. Confirmation samples were analyzed for NYSDEC Part 375 VOCs, SVOCs, PCBs, pesticides, metals, and toxicity characteristic leaching procedure (TCLP) metals. Confirmation samples were compared to the Part 375 UUSCOs. None of the samples had concentrations above UUSCOs for VOCs, SVOCs, PCBs, pesticides, or metals.

2.4 REMEDIAL ACTION OBJECTIVES

The Remedial Action Objectives (RAOs) for the Site based on results of the RI and established in the RAWP are as follows:

2.4.1 Groundwater

RAOs for Public Health Protection:

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

2.4.2 Soil

RAOs for Public Health Protection:

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

RAOs for Environmental Protection:

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

2.4.3 Soil Vapor

RAOs for Public Health Protection:

- Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion (SVI) into building(s) at the Site.

2.5 SUMMARY OF REMEDIAL ACTIONS

Remedial actions were performed at the Site in accordance with the NYSDEC-approved RAWP dated 03 February 2023, the Decision Document dated 03 February 2023, and all applicable federal, state, and local rules and regulations. Remedial activities were completed on [TBD].

The Remedial Actions performed at the Site included:

- Implementation of a Construction Health & Safety Plan (CHASP) and Community Air Monitoring Plan (CAMP) for the protection of on-site workers, community/residents, and the environment during remediation and construction activities.
- Injection of alkaline activated persulfate (AP-pH, an in-situ chemical oxidation [ISCO] reagent) to the groundwater through injection wells and/or temporary injection points to reduce elevated petroleum-based VOCs and PAHs concentrations in the groundwater.
- Design and installation of support of excavation (SOE) elements to support the Track 1 cleanup excavation.
- Implementation of soil erosion, pollution, and sediment control measures in compliance with applicable laws and regulations.
- Removal of the existing pavement and miscellaneous debris on the Site.
- Decommissioning of on-site monitoring wells, in accordance with NYSDEC CP-43 Policy.
- Excavation, stockpiling, off-Site transport, and disposal of approximately 5,500 cubic yards of contaminated fill that exceeds Track 1 UUSCOs. Excavation will extend to 8 ft bgs across the entire Site to remove the contaminated fill. [Total quantities to be added upon completion of the FER.]
- Hotspot excavation to remove soil that exceeds UUSCOs. Excavation extended beyond fill interval to approximately 14 ft bgs centered on SB-4 and SB-8 to remove metal-impacted soils and to 14 ft bgs centered on SB-12 to remove petroleum-related VOCs and metal-impacted soils. These localized hotspot excavations generated approximately 150 cubic yards of additional soil for removal from the Site to achieve Track 1 UUSCOs. [Total quantities to be added upon completion of the FER.]
- Removal of ten USTs and associated appurtenances (e.g., fill lines, vent line, and electrical conduit) and decommissioning and off-Site disposal during redevelopment in accordance with DER-10, 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements.
- Screening for indications of contamination (by visual means, odor, and monitoring PIDs) of excavated material and pavement during intrusive Site work.
- Implementation of a preliminary waste characterization to facilitate off-site disposal of excavated soil/fill.
- Appropriate off-site disposal of material removed from the Site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal.
- Collection and analysis of endpoint soil samples from the excavation base and sidewalls of hotspot excavation areas in accordance with DER-10 to confirm the attainment of Track 1 remedy.
- Installation of five permanent monitoring wells.
- Completion of an SVI Evaluation in accordance with DER-10 and NYSDOH Final Guidance on Soil Vapor Intrusion following remedial activities and the completion of the building envelope, and prior to occupancy.

2.6 REMAINING CONTAMINATION

The achieved remedy is a conditional Track 1 cleanup; therefore, groundwater monitoring is required to confirm that the soils meet UUSCOs and there is no remaining contamination within the subsurface at the Site. Remaining contamination in groundwater from the August 2023 post-remedial sampling event is included in Table II.

2.6.1 Groundwater

Groundwater quality was characterized during investigations prior to entering the BCP and during the RI conducted as part of the BCP. During the RI, groundwater beneath the Site was found to have concentrations of VOCs, SVOCs, and Metals above the AWQSs; therefore, groundwater treatment was included as a component of the Decision Document. A groundwater treatment program was completed at the Site to reduce petroleum-based VOC and PAH concentrations in groundwater. Quarterly groundwater monitoring will be conducted to confirm the efficacy of the groundwater treatment. Groundwater use at the Site is also subject to the ICs documented within the Environmental Easement and is restricted for use as a source of potable or process water without necessary water quality treatment as determined by NYSDOH.

Table II and Figure 4 summarize the results of all samples of groundwater that exceed the AWQS after completion of the remedial action.

3. Institutional and Engineering Control Plan

3.1 GENERAL

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

This plan provides:

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

3.2 INSTITUTIONAL CONTROLS

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

- The property may be used for: restricted residential, commercial, and industrial use, or lesser uses pending the first year of quarterly groundwater monitoring and the soil vapor evaluation, after which it may be used for unrestricted use;
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in the SMP;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to Site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the EE; and
- The potential for SVI must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 2, and any potential impacts that are identified must be monitored or mitigated.

3.3 ENGINEERING CONTROLS

The Controlled Property (the Site) includes one primary EC: a sub-slab depressurization system (SSDS).

3.3.1 Sub-Slab Depressurization System

A passive SSDS was installed such that if it is turned on it will mitigate the potential for soil vapor intrusion by providing a pathway for soil vapor to vent to the atmosphere at least 12-inch above the highest roof surface and at least 10-feet away from any adjacent building or HVAC intakes. The passive SSDS itself is not an engineering control (EC), it would only be considered an EC if it is turned on and made an active SSDS. The major components of the SSDS include:

- One continuous perforated 3-inch PVC horizontal pipe with four termini, embedded within a permeable layer (3/4-inch stone);
- Six sub-slab vapor monitoring points throughout the building slab;
- An exhaust stack consisting of 4-inch diameter cast iron riser pipe extending through the roof and terminating with a turbine ventilator, at least 12-inch above the highest roof surface and at least 10-feet away from any adjacent building or HVAC intakes.

The SSDS layout is shown on Figure 5. Appendix C contains the as-built passive SSDS system.

3.3.2 Media Monitoring Program

As part of the conditional track 1 remedy, groundwater monitoring will be conducted quarterly for one year to demonstrate that concentrations are below AWQS. The Site includes a network of five monitoring wells, shown in Figure 6. Future groundwater monitoring will be performed on a frequency approved by

NYSDEC/NYSDOH to assess the performance of the remedy. The locations of groundwater monitoring wells selected for inclusion at the start of Site Management includes upgradient, downgradient, cross-gradient and Site-central locations to confirm groundwater conditions at the Site.

Groundwater monitoring will continue as determined in consultation with NYSDEC and NYSDOH until residual groundwater concentrations are found to be below NYSDEC standards or have become asymptotic over an extended period. The groundwater monitoring program will include gauging from all accessible monitoring wells on a quarterly basis to confirm groundwater flow elevations and inferred groundwater flow direction. Groundwater samples will be analyzed for VOCs, PAHs and Total Lead and will be compared to AWQS. Sampling will be conducted as detailed in the Quality Assurance Project Plan (QAPP) included as Appendix D.

3.3.3 Criteria for Completion of Remediation/Termination of Remedial Systems

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

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

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

3.3.3.1 Sub-Slab Depressurization System

The passive SSDS will remain a potential EC until an SVI Evaluation is conducted to assess soil vapor and indoor air conditions at the Site. Should the results of the SVI evaluation deem it necessary to turn on the SSDS, then the active SSDS would be considered an EC. The SVI Evaluation protocol is described in Section 4. The SSDS will not be discontinued unless prior written approval is granted by the NYSDEC and NYSDOH project managers. If the SVI Evaluation indicates that the SSDS may no longer be required, a proposal to discontinue the SSDS as an EC will be submitted by the remedial party to the NYSDEC and NYSDOH project managers.

3.3.3.2 Groundwater Monitoring Wells

Groundwater monitoring activities to assess the ISCO treatment will continue, as determined by the NYSDEC project manager in consultation with NYSDOH project manager, until residual groundwater concentrations are found to be consistently below AWQS or have become asymptotic at an acceptable

level over an extended period. If monitoring data indicates that monitoring may no longer be required, a proposal to discontinue the remedy will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC project manager. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional control measures will be evaluated.

4. Monitoring and Sampling Plan

4.1 GENERAL

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

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

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

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

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

Reporting requirements are provided in Section 7.0 of this SMP.

4.2 SITE-WIDE INSPECTION

Site-wide inspections will be performed at a minimum of once per year. These periodic inspections must be conducted when the ground surface is visible (i.e., no snow cover). Site-wide inspections will be performed by a qualified environmental professional (QEP) as defined in 6 NYCRR Part 375, a P.E. who is licensed and registered in New York State, or a qualified person who directly reports to a P.E. who is licensed and registered in New York State. Modification to the frequency or duration of the inspections will require approval from the NYSDEC project manager. Site-wide inspections will also be performed after all severe weather conditions that may affect ECs or monitoring devices. During these inspections, an inspection form will be completed as provided in Appendix E – Site Management Forms. The form will compile sufficient information to assess the following:

- Compliance with all ICs, including Site usage;

- An evaluation of the condition and continued effectiveness of ECs;
- General Site conditions at the time of the inspection;
- The Site management activities being conducted including, where appropriate, confirmation sampling and a health and safety inspection; and
- Confirm that Site records are up to date.

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

- Whether ECs continue to perform as designed;
- If these controls continue to be protective of human health and the environment;
- Compliance with requirements of this SMP and the Environmental Easement;
- Achievement of remedial performance criteria; and
- If Site records are complete and up to date.

Reporting requirements are outlined in Section 7.0 of this plan.

Inspections will also be performed in the event of an emergency. If an emergency, such as a natural disaster or an unforeseen failure of any of the ECs occurs that reduces or has the potential to reduce the effectiveness of ECs in place at the site, verbal notice to the NYSDEC project manager must be given by noon of the following day. In addition, an inspection of the Site will be conducted within 5 days of the event to verify the effectiveness of the IC/ECs implemented at the Site by a qualified environmental professional, as defined in 6 NYCCR Part 375. Written confirmation must be provided to the NYSDEC project manager within 7 days of the event that includes a summary of actions taken, or to be taken, and the potential impact to the environment and the public.

In-Text Table III – Sitewide Inspection ECs

EC Monitored	Frequency*	Location(s)	Matrix	Analysis
SSDS	Annually	Vertical risers, monitoring points	NA	Visual Inspection of the SSDS

* The frequency of events will be conducted as specified until otherwise approved in writing by NYSDEC and NYSDOH

4.3 POST-REMEDIATION MEDIA MONITORING AND SAMPLING

Samples shall be collected from the five on-site groundwater monitoring wells on a quarterly basis. Sampling locations required, analytical parameters, and schedule are provided in In-Text Table IV below. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

In-Text Table IV – Post Remediation Sampling Requirements and Schedule

Sampling Location	Analytical Parameters			Schedule
	VOCs (EPA method 8260B)	SVOCs (EPA method 8270C)	Total and Dissolved Metals (EPA methods 6010/7471)	
Monitoring Well 01	X	X	X	Quarterly
Monitoring Well 02	X	X	X	Quarterly
Monitoring Well 03	X	X	X	Quarterly
Monitoring Well 04	X	X	X	Quarterly
Monitoring Well 05	X	X	X	Quarterly

Field activities, including groundwater sampling, will be conducted as detailed in the Quality Assurance Project Plan (QAPP), included as Appendix D. Following the low-flow purge, samples will be collected from monitoring wells for analysis of the analytes mentioned above. Groundwater sampling will be conducted at least one week after monitoring well development.

4.3.1 Groundwater Sampling

Groundwater monitoring will be performed quarterly to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC project manager.

The network of monitoring wells has been installed to monitor upgradient, cross-gradient, the middle of the Site and downgradient groundwater conditions at the Site. The network of on-site wells has been designed based on the following criteria:

In-Text Table V summarizes the wells' identification numbers, as well as the purpose, location, depths, diameter and screened intervals of the wells. As part of the groundwater monitoring, one upgradient well, two cross-gradient wells, one well in the center of the Site and one downgradient well are sampled to evaluate the effectiveness of the ISCO treatment. The remedial party will measure depth to the water table for each monitoring well in the network before sampling.

Monitoring wells will be sampled and analyzed for:

- TCL VOCs using EPA method 8260B;
- TCL SVOCs using EPA method 8270C;
- Total and Dissolved Metals using EPA methods 6010/7471;

In-Text Table V – Monitoring Well Construction Details

Monitoring Well ID	Well Purpose / Location	Coordinates (longitude/ latitude)	Well Diameter (inches)	Elevation (above mean sea level) – approximate until installed and surveyed			
				Casing Elevation	Screen Length	Screen Top (ft bgs)	Screen Bottom (ft bgs)
Monitoring Well 01	Cross Gradient of Upgradient	TBD	2	TBD	10	~20	~30
Monitoring Well 02	Upgradient	TBD	2	TBD	10	~20	~30
Monitoring Well 03	Site Center	TBD	2	TBD	10	~20	~30
Monitoring Well 04	Down Gradient	TBD	2	TBD	10	~20	~30
Monitoring Well 05	Cross Gradient of Down Gradient	TBD	2	TBD	10	~20	~30

Monitoring well construction logs are included in Appendix F of this document.

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

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

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

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

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

4.3.2 Soil Vapor Intrusion Evaluation

A desktop review SVI Evaluation will be conducted to assess the potential for vapor intrusion upon completion of the building envelope.

Deliverables for the SVI Evaluation are specified in Section 7.0 – Reporting Requirements.

4.3.3 Monitoring and Sampling Protocol

All sampling activities will be recorded in a field book and associated sampling log as provided in Appendix E - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network. Additional detail regarding monitoring and sampling protocols are provided in the QAPP provided as Appendix D of this document.

5. Operations and Maintenance Plan

5.1 GENERAL

This Operation and Maintenance (O&M) Plan provides a brief description of the measures necessary to operate, monitor and maintain the mechanical components of the remedy selected for the site. This O&M Plan:

- Includes the procedures necessary to allow individuals unfamiliar with the site to operate and maintain the passive SSDS; and,
- Will be updated periodically to reflect changes in site conditions or the manner in which the passive SSDS are operated and maintained.

5.2 REMEDIAL SYSTEM PERFORMANCE CRITERIA

A passive SSDS was installed at the Site to prevent the potential for vapor intrusion into the building until confirmation of the petroleum-related VOCs and PAHs within groundwater are below AWQS beneath the Site. As-built drawings for the SSDS are included in Appendix C. Details pertaining to the performance monitoring of these ECs are outlined below.

5.3 SSDS OPERATION AND MAINTENANCE

As this is a passive SSDS, start-up testing is not required, and routine maintenance will only consist of visual inspection to confirm the turbine ventilator and VMPs are operational. Results of these inspections will be reported per the requirements of Section 7. As-built drawings for the SSDS are included in Appendix C.

5.3.1 ROUTINE SYSTEM OPERATION AND MAINTENANCE

Routine operation involves the effective distribution of soil vapor from the subsurface, through the SSDS conduits, and out from the riser outlets. Routine inspection will be conducted by qualified engineer or building personnel to ensure that components of the SSDS are operating properly and will continue until NYSDEC and NYSDOH have determined there is no need for such a system. The operation of the SSDSs will not be discontinued without written approval from the NYSDEC. The SMP may be amended to include an Operations, Maintenance, and Monitoring (OM&M) manual for the routine maintenance of the SSDS, should the Department determine the system should become active.

Personnel will continue routine maintenance on the SSDS annually and as needed. On an annual basis, routine maintenance will include, at a minimum:

- Conduct a visual inspection of the complete system;
- Identification and repair of damage;
- Inspect the discharge location of the vent pipe to ensure that no new air intake or operable window is located nearby;

- Inspect the floor slab and foundation walls for evidence of cracks and/or holes, and repair of cracks and/or holes, if required; and,
- Inspection of sealing around any monitoring wells and floor cleanout covers.

5.3.2 NON-ROUTINE OPERATION AND MAINTENANCE

Non-routine maintenance will result from a visual inspection of the building slab for a breach resulting in vapor emission, and a visual inspection of the riser outlet for vapor pressure release and/or the ventilator cap for mechanical malfunction. Maintenance of the slab involves repair of the breached area to ensure coverage from vapor intrusion.

Non-routine maintenance of the SSDS would typically occur during routine maintenance or operational inspections that indicate any problems with parts of the system. The scope of non-routine maintenance will vary depending upon the situation. In general, the following actions will be taken as part of non-routine maintenance:

- Inspection of the discharge point to verify that no new air intakes have been located nearby.
- Examine the building for structural or HVAC system changes, or other changes that may affect the performance of the SSDS (e.g., new combustion appliances or deterioration of the concrete slab); and,
- Repair or adjust the SSDS as appropriate. If necessary, the SSDS should be redesigned.

5.3.3 FIRE SAFETY

The remedial party will conduct an annual facility walk with the appropriate building personnel, if requested by local authorities. The site walk will allow for the addition of the facility to any local preplanning efforts. The NYSDEC project manager will be provided with the local fire chief's/fire suppression team's recommendations as soon as they become available. Following review, the NYSDEC project manager may direct the remedial party to implement the recommendations and/or revise the SMP.

6. Periodic Assessments/Evaluations

6.1 CLIMATE CHANGE VULNERABILITY ASSESSMENT

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

A vulnerability assessment will be conducted for the Site during periodic assessments to ensure resilience of engineering controls to severe storms/weather events and associated flooding.

6.2 GREEN REMEDIATION EVALUATION

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This SMP does not require any green remediation evaluations to be completed for the Site during site management. Any updates or related site improvements will be incorporated in the PRR.

6.2.1 Timing Of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization (RSO), or at any time that the NYSDEC project manager feels appropriate, e.g., during significant maintenance events or in conjunction with storm recovery activities.

Modifications resulting from green remediation evaluations will be routinely implemented and scheduled to occur during planned/routine operation and maintenance activities. Reporting of these modifications will be presented in the PRR.

At this time, no major remedial system components are anticipated, and therefore no green remediation evaluations are expected.

6.2.2 Remediation Systems

Remedial systems will be operated properly considering the current Site conditions to conserve materials and resources to the greatest extent possible. Consideration will be given to operating rates and use of reagents and consumables. Groundwater monitoring purge water will be sent for disposal, as appropriate.

6.2.3 Building Operations

Structures including buildings and sheds will be operated and maintained to provide for the most efficient operation of the remedy, while minimizing energy, waste generation and water consumption.

6.2.4 Frequency of System Checks, Sampling and Other Periodic Activities

Transportation to and from the Site, use of consumables in relation to visiting the Site in order to conduct system checks and/or collect samples, and shipping samples to a laboratory for analyses have direct and/or inherent energy costs. The schedule and/or means of these periodic activities have been prepared so that these tasks can be accomplished in a manner that does not impact remedy protectiveness but reduces expenditure of energy or resources.

6.2.5 Metric and Reporting

As discussed in Section 7.0 and as shown in Appendix E – Site Management Forms, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during Site management and to identify corresponding benefits.

6.3 REMEDIAL SYSTEM OPTIMIZATION

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC project manager or the remedial party requests in writing that an in-depth evaluation of the remedy is needed. An RSO may be appropriate if any of the following occur:

- The remedial actions have not met or are not expected to meet RAOs in the time frame estimated in the Decision Document;
- Previously unidentified source material may be suspected;
- Plume shift has potentially occurred;
- Site conditions change due to development, change of use, change in groundwater use, etc.;
- There is an anticipated transfer of the site management to another remedial party or agency; and
- A new and applicable remedial technology becomes available.

An RSO will provide a critique of a site's conceptual model, give a summary of past performance, document current cleanup practices, summarize progress made toward the site's cleanup goals, gather additional performance or media specific data and information and provide recommendations for improvements to enhance the ability of the present system to reach RAOs or to provide a basis for changing the remedial strategy.

7. Reporting Requirements

7.1 SITE MANAGEMENT REPORTS

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

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

In-Text Table VI: Schedule of Interim Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Soil Vapor Intrusion Evaluation	One time, upon the completion of the building evelope.
First Periodic Review Report	16 Months after approval of the SMP
Follow-on Periodic Review Reports	TBD after submittal of the First Periodic Review Reports

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

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

- Date of event or reporting period;
- Name, company, and position of person(s) conducting monitoring/inspection activities;
- Description of the activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet);
- Type of samples collected (e.g., sub-slab vapor, indoor air, outdoor air);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation);
- Sampling results in comparison to appropriate standards/criteria;
- A figure illustrating sample type and sampling locations;

- Copies of all laboratory data sheets and the required laboratory data deliverables required for all points sampled (to be submitted electronically in the NYSDEC-identified format);
- Any observations, conclusions, or recommendations; and
- A determination as to whether contaminant conditions have changed since the last reporting event.

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

- Date of event;
- Name, company, and position of person(s) conducting maintenance activities;
- Description of maintenance activities performed;
- Any modifications to the system;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents noted (included either on the checklist/form or on an attached sheet); and
- Other documentation such as copies of invoices for maintenance work, receipts for replacement equipment, etc., (attached to the checklist/form).

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

- Date of event;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Description of non-routine activities performed;
- Where appropriate, color photographs or sketches showing the approximate location of any problems or incidents (included either on the form or on an attached sheet); and
- Other documentation such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

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

7.2 PERIODIC REVIEW REPORT

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

- Identification, assessment and certification of all ECs/ICs required by the remedy for the site.
- Results of the required annual Site inspections, fire inspections and severe condition inspections, if applicable.
- All applicable Site management forms and other records generated for the Site during the reporting period in the NYSDEC-approved electronic format, if not previously submitted.
- Identification of any wastes generated during the reporting period, along with waste characterization data, manifests, and disposal documentation.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (groundwater, soil vapor, etc.), which include a listing of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These tables and figures will include a presentation of past data as part of an evaluation of contaminant concentration trends.
- Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period will be submitted in digital format as determined by the NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.
- A Site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific Decision Document (DD);
  - The operation and the effectiveness of all treatment units, etc., including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding Site contamination based on inspections or data generated by the Monitoring and Sampling Plan for the media being monitored;
  - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan;
  - An evaluation of trends in contaminant levels in the affected media to determine if the remedy continues to be effective in achieving remedial goals as specified by the DD; and
  - The overall performance and effectiveness of the remedy.

7.2.1 Certification of Institutional and Engineering Controls

Certification of IC/ECs will be included in the PRR.

Following the last inspection of the reporting period, a QEP or P.E. licensed to practice and registered in New York State will prepare, and include in the PRR, the following certification as per the requirements of NYSDEC DER-10:

"For each institutional or engineering control identified for the site, I certify that all of the following statements are true:

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

I certify that all information and statements in this certification form are true. I understand that a false statement made herein is punishable as a Class "A" misdemeanor, pursuant to Section 210.45 of the Penal Law. I, [name], of [business address], am certifying as [Owner/Remedial Party or Owner's/Remedial Party's Designated Site Representative] for the Site."

The signed certification will be included in the PRR.

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

7.3 CORRECTIVE MEASURES WORK PLAN

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

7.4 REMEDIAL SYSTEM OPTIMIZATION REPORT

If an RSO is to be performed (see Section 6.3), upon completion of an RSO, an RSO report must be submitted to the NYSDEC project manager for approval. The RSO report will document the research/investigation and data gathering that was conducted, evaluate the results and facts obtained, present a revised conceptual site model and present recommendations. RSO recommendations are to be implemented upon approval from the NYSDEC. Additional work plans, design documents, HASPs etc., may still be required to implement the recommendations, based upon the actions that need to be taken. A final engineering report and update to the SMP may also be required.

The RSO report will be submitted, in electronic format, to the NYSDEC project manager and the NYSDOH project manager.

8. References

1. 6 NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.
2. NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".
3. NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).
4. Environmental Site Assessment Report (Geologic Service Corporation, July 1999)
5. Fourth Quarterly Update Report with Pilot Test (EnviroTrac Ltd., February 2009)
6. Revised Work Plan for Additional Air Sparge Wells (EnviroTrac Ltd., March 2009)
7. STRE Work Plan (EnviroTrac Ltd., March 2009)
8. First Quarterly Update Report with STRE Data (EnviroTrac Ltd., May 2010)
9. Second Quarterly Update Report with STRE Data (EnviroTrac Ltd., August 2010)
10. Fourth Quarterly Update Report (EnviroTrac Ltd., January 2019)
11. First Quarterly Update Report (EnviroTrac Ltd., May 2021)
12. Phase I Environmental Site Assessment (Haley & Aldrich, October 2021)
13. Limited Phase II Environmental Site Investigation Report (Haley & Aldrich, November 2021)
14. Limited Phase II Environmental Site Investigation Report (Haley & Aldrich, November 2021)
15. Remedial Investigation Report (Haley & Aldrich, September 2022)
16. Construction Completion Report for the Interim Remedial Measure (Haley & Aldrich, January 2023)
17. Remedial Action Work Plan (Haley & Aldrich, January 2023)
18. Decision Document (NYSDEC, February 2023)

TABLES

TABLE I
GROUNDWATER ELEVATION DATA
2864 ATLANTIC AVENUE
BROOKLYN, NY

Montioring Well	Basement Slab Elevation	Groundwater Elevation
MW-1	28.57	8.46
MW-2	28.54	8.51
MW-3	28.57	9.05
MW-4	28.59	8.97
MW-5	28.52	8.38

Note: Elevations are derived from Elevation datum NAVD 1988

TABLE II
REMAINING CONTAMINATION IN GROUNDWATER
2864 ATLANTIC AVENUE
BROOKLYN, NY

	Action Level						
Location Name	New York TOGS	MW-1	MW-2	MW-3	MW-4	MW-5	QA/QC
Sample Name	111 Ambient	MW-01-20230817	MW-02-20230817	MW-03-20230817	MW-04-20230817	MW-05-20230817	DUP1_20230817
Sample Date	Water Quality	08/17/2023	08/17/2023	08/17/2023	08/17/2023	08/17/2023	08/17/2023
Lab Sample ID	Standards	460-286578-1	460-286578-2	460-286578-3	460-286578-4	460-286578-5	460-286578-6
Volatile Organic Compounds (ug/L)							
1,1,1-Trichloroethane	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,1,2,2-Tetrachloroethane	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,1,2-Trichloroethane	1	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,1-Dichloroethane	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,1-Dichloroethene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,2,3-Trichlorobenzene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,2,4-Trichlorobenzene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,2,4-Trimethylbenzene	5	9.4	ND (1)	0.37 J	ND (1)	2300	ND (1)
1,2-Dibromo-3-chloropropane (DBCP)	0.04	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,2-Dibromoethane (Ethylene Dibromide)	0.0006	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,2-Dichlorobenzene	3	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,2-Dichloroethane	0.6	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,2-Dichloropropane	1	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,3,5-Trimethylbenzene	5	2.3	ND (1)	ND (1)	ND (1)	460	ND (1)
1,3-Dichlorobenzene	3	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
1,4-Dichlorobenzene	3	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
2-Butanone (Methyl Ethyl Ketone)	50	ND (5)	ND (5)	ND (5)	3.1 J	44	ND (5)
2-Hexanone (Methyl Butyl Ketone)	50	ND (5)	ND (5)	ND (5)	ND (5)	ND (25)	ND (5)
2-Phenylbutane (sec-Butylbenzene)	5	ND (1)	ND (1)	ND (1)	11	21	ND (1)
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	NA	ND (5)	ND (5)	ND (5)	ND (5)	ND (25)	ND (5)
Acetone	50	ND (5)	ND (5)	ND (5)	5.9	74	ND (5)
Benzene	1	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Bromodichloromethane	50	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Bromoform	50	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Bromomethane (Methyl Bromide)	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Carbon disulfide	60	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Carbon tetrachloride	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Chlorobenzene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Chlorobromomethane	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Chloroethane	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Chloroform (Trichloromethane)	7	1.7	12	7.9	0.94 J	5.5	12
Chloromethane (Methyl Chloride)	5	0.53 J	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
cis-1,2-Dichloroethene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
cis-1,3-Dichloropropene	0.4	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Cyclohexane	NA	0.62 J	ND (1)	ND (1)	ND (1)	210	ND (1)
Dibromochloromethane	50	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Dichlorodifluoromethane (CFC-12)	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Ethylbenzene	5	1.2	ND (1)	ND (1)	ND (1)	640	ND (1)
Isopropylbenzene (Cumene)	5	0.42 J	ND (1)	ND (1)	2.3	130	ND (1)
m,p-Xylenes	5	2.3	ND (1)	ND (1)	ND (1)	1200	ND (1)
Methyl acetate	NA	ND (5) *	ND (5) *	ND (5) *	ND (5) *	ND (25) *	ND (5) *
Methyl Tert Butyl Ether (MTBE)	10	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Methylcyclohexane	NA	1.2	ND (1)	ND (1)	9.6	200	ND (1)
Methylene chloride (Dichloromethane)	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
n-Butylbenzene	5	0.8 J	ND (1)	ND (1)	8.4	43	ND (1)
n-Propylbenzene	5	2	ND (1)	ND (1)	5.5	390	ND (1)
o-Xylene	5	ND (1)	ND (1)	ND (1)	ND (1)	28	ND (1)
Styrene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
tert-Butylbenzene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Tetrachloroethene	5	ND (1)	ND (1)	0.68 J	ND (1)	ND (5)	0.26 J
Toluene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
trans-1,2-Dichloroethene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
trans-1,3-Dichloropropene	0.4	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Trichloroethene	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Trichlorofluoromethane (CFC-11)	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Trifluorotrichloroethane (Freon 113)	5	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Vinyl chloride	2	ND (1)	ND (1)	ND (1)	ND (1)	ND (5)	ND (1)
Xylene (Total)	5	2.3	ND (2)	ND (2)	ND (2)	1200	ND (2)
Semi-Volatile Organic Compounds (ug/L)							
1,2,4,5-Tetrachlorobenzene	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,2'-oxybis(1-Chloropropane)	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,3,4,6-Tetrachlorophenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4,5-Trichlorophenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4,6-Trichlorophenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-Dichlorophenol	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-Dimethylphenol	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,4-Dinitrophenol	10	ND (40)	ND (40)	ND (40)	ND (40)	ND (40)	ND (40)
2,4-Dinitrotoluene	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2,6-Dinitrotoluene	5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
2-Chloronaphthalene	10	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Chlorophenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Methylnaphthalene	NA	ND (10)	ND (10)	ND (10)	ND (10)	110	ND (10)
2-Methylphenol (o-Cresol)	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Nitroaniline	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
2-Nitrophenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
3&4-Methylphenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
3,3'-Dichlorobenzidine	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
3-Nitroaniline	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4,6-Dinitro-2-methylphenol	NA	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
4-Bromophenyl phenyl ether (BDE-3)	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Chloro-3-methylphenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Chloroaniline	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Chlorophenyl phenyl ether	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Methylphenol	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Nitroaniline	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
4-Nitrophenol	NA	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Acenaphthene	20	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Acenaphthylene	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Acetophenone	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Anthracene	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Atrazine	7.5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Benzaldehyde	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzo(a)anthracene	0.002	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Benzo(a)pyrene	0	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Benzo(b)fluoranthene	0.002	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Benzo(g,h,i)perylene	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Benzo(k)fluoranthene	0.002	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Biphenyl	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
bis(2-Chloroethoxy)methane	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
bis(2-Chloroethyl)ether	1	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
bis(2-Ethylhexyl)phthalate	5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Butyl benzylphthalate (BBP)	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Caprolactam	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Carbazole	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Chrysene	0.002	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Dibenz(a,h)anthracene	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Dibenzofuran	NA	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Diethyl phthalate	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Dimethyl phthalate	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Di-n-butylphthalate (DBP)	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Di-n-octyl phthalate (DnOP)	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Fluoranthene	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Fluorene	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Hexachlorobenzene	0.04	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Hexachlorobutadiene	0.5	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Hexachlorocyclopentadiene	5	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Hexachloroethane	5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Indeno(1,2,3-cd)pyrene	0.002	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Isophorone	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Naphthalene	10	ND (2)	ND (2)	ND (2)	ND (2)	230	ND (2)
Nitrobenzene	0.4	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
N-Nitrosodi-n-propylamine	NA	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
N-Nitrosodiphenylamine	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Pentachlorophenol	1	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)	ND (20)
Phenanthrene	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Phenol	1	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
Pyrene	50	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

TABLE II
REMAINING CONTAMINATION IN GROUNDWATER
2864 ATLANTIC AVENUE
BROOKLYN, NY

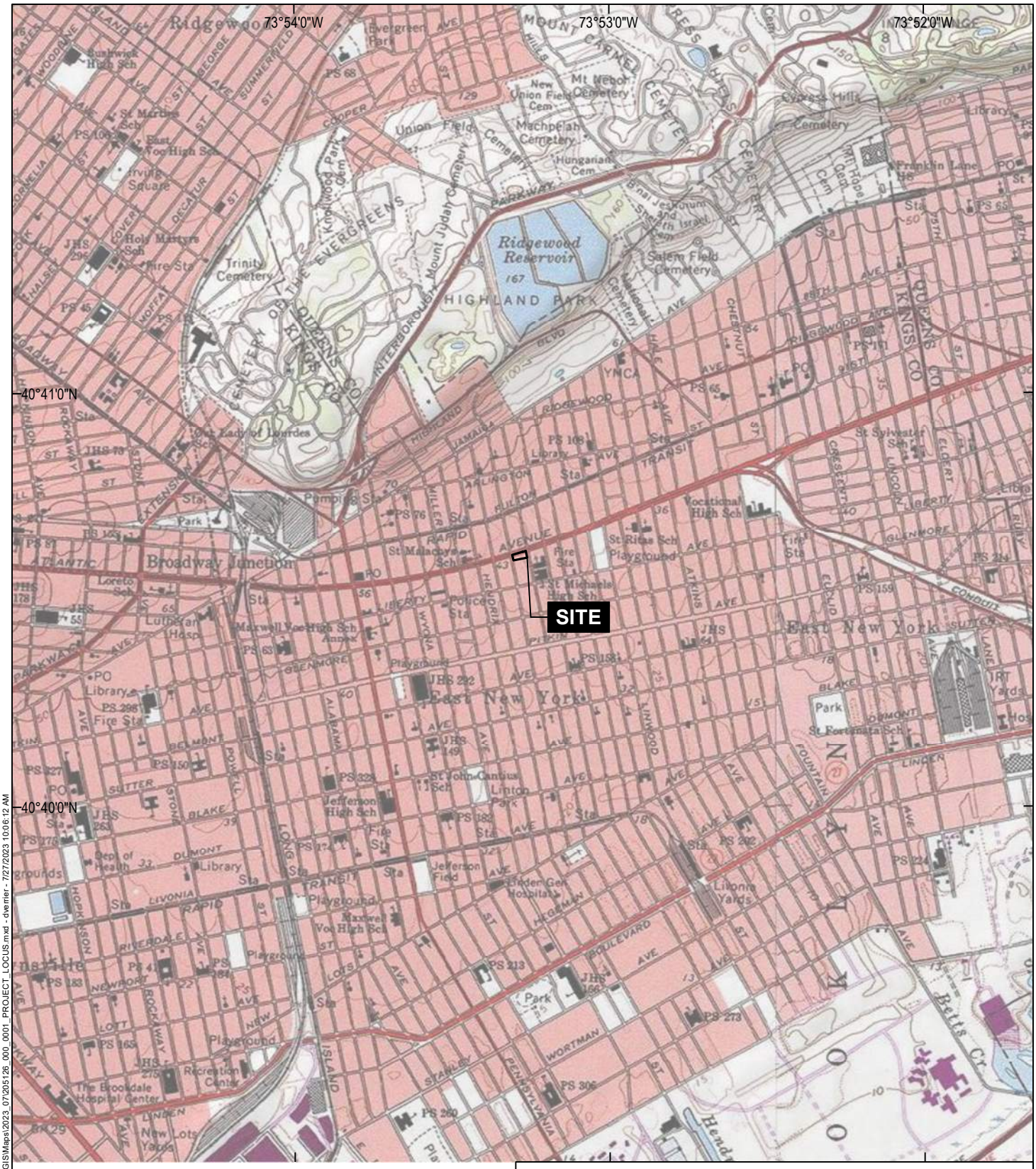
	Action Level						
Location Name	New York TOGS	MW-1	MW-2	MW-3	MW-4	MW-5	QA/QC
Sample Name	111 Ambient	MW-01-20230817	MW-02-20230817	MW-03-20230817	MW-04-20230817	MW-05-20230817	DUP1_20230817
Sample Date	Water Quality	08/17/2023	08/17/2023	08/17/2023	08/17/2023	08/17/2023	08/17/2023
Lab Sample ID	Standards	460-286578-1	460-286578-2	460-286578-3	460-286578-4	460-286578-5	460-286578-6
Inorganic Compounds (ug/L)							
Aluminum, Dissolved	NA	ND (40)	ND (40)	ND (40)	ND (40)	ND (40)	ND (40)
Antimony, Dissolved	3	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Arsenic, Dissolved	25	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Barium, Dissolved	1000	42.7	68.9	30.9	62.2	45.8	67
Beryllium, Dissolved	3	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)
Cadmium, Dissolved	5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Calcium, Dissolved	NA	17900	48100	20800	33900	23400	48700
Chromium, Dissolved	50	ND (4)	2.8 J	ND (4)	ND (4)	ND (4)	2.4 J
Cobalt, Dissolved	NA	ND (4)	ND (4)	ND (4)	0.68 J	1.2 J	ND (4)
Copper, Dissolved	200	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)
Iron, Dissolved	300	ND (120)	ND (120)	ND (120)	ND (120)	134	ND (120)
Lead, Dissolved	25	ND (1.2)	ND (1.2)	ND (1.2)	2.5	4.8	ND (1.2)
Magnesium, Dissolved	35000	5370	15300	2750	6220	5630	15600
Manganese, Dissolved	300	18	10.6	2 J	2450	1430	12.8
Mercury, Dissolved	0.7	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Nickel, Dissolved	100	3.4 J	1.5 J	ND (4)	3 J	2.1 J	ND (4)
Potassium, Dissolved	NA	5690	2560	2900	5050	1810	2520
Selenium, Dissolved	10	1.9 J	1.8 J	1.5 J	1 J	0.87 J	1.9 J
Silver, Dissolved	50	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Sodium, Dissolved	20000	113000 B	87200 B	132000 B	153000 B	48300 B	86600 B
Thallium, Dissolved	0.5	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)
Vanadium, Dissolved	NA	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)
Zinc, Dissolved	2000	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)
Aluminum, Total	NA	172	29.1 J	267	47.8	122	120
Antimony, Total	3	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Arsenic, Total	25	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Barium, Total	1000	40.8	68.3	37	75.4	52.4	61.1
Beryllium, Total	3	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)
Cadmium, Total	5	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Calcium, Total	NA	16700	49100	20200	34400	22400	46400
Chromium, Total	50	11	4.7	ND (4)	6.1	11.1	9.1
Cobalt, Total	NA	0.57 J	ND (4)	0.65 J	0.83 J	1.6 J	0.61 J
Copper, Total	200	2 J	ND (4)	ND (4)	ND (4)	ND (4)	ND (4)
Iron, Total	300	609	92.3 J	710	3380	6730	371
Lead, Total	25	ND (1.2)	ND (1.2)	ND (1.2)	2.8	7.2	ND (1.2)
Magnesium, Total	35000	4960	15000	2390	6570	5630	14600
Manganese, Total	300	32.1	17.9	63.1	2670	1480	43
Mercury, Total	0.7	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Nickel, Total	100	7	2.7 J	2.7 J	5.3	8.4	4.6
Potassium, Total	NA	5720	2600	3020	5210	1760	2450
Selenium, Total	10	2 J	1.7 J	1.3 J	0.89 J	1 J	1.6 J
Silver, Total	50	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)	ND (2)
Sodium, Total	20000	111000	86100	130000	151000	42400	78900
Thallium, Total	0.5	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)	ND (0.8)
Vanadium, Total	NA	ND (4)	ND (4)	1 J	ND (4)	ND (4)	ND (4)
Zinc, Total	2000	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)	ND (16)

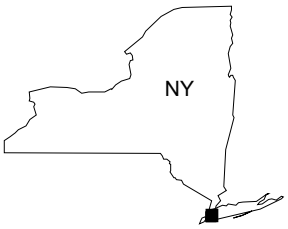
ABBREVIATIONS AND NOTES:
µg/L: micrograms per liter

*: LCS or LCSD is outside acceptance limits.
-: Not Analyzed
B: Compound was found in the blank and the associated sample.
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.
- Groundwater analytical results are compared to NY-AWQS: NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA Water.
- Yellow shading indicates an exceedance of the AWQS criteria.

FIGURES





MAP SOURCE: UNITED STATES GEOLOGICAL SURVEY (USGS)
SITE COORDINATES: 40°40'36"N, 73°53'17"W

HALEY ALDRICH

2864 ATLANTIC AVENUE REDEVELOPMENT SITE
2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

SITE LOCATION MAP

APPROXIMATE SCALE: 1 IN = 2000 FT
AUGUST 2023

FIGURE 1

GIS: \\haleyaldrich.com\share\CF\Projects\0205126\GIS\Maps\2023_07\205126_000_0001_PROJECT_LOCUS.mxd - dvernier - 7/27/2023 10:06:12 AM

LEGEND

- COMMUTER RAIL LINE
- SITE BOUNDARY
- PERMANENT MONITORING WELL LOCATION
- 8.06 GROUNDWATER ELEVATION
- 8.20 GROUNDWATER ELEVATION CONTOUR
- 8.20 INFERRED ELEVATION CONTOUR
- GROUNDWATER FLOW DIRECTION

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE
2. ASSESSOR PARCEL DATA SOURCE: NYC DEPARTMENT OF CITY PLANNING
3. AERIAL IMAGERY SOURCE: NEARMAP, 12 AUGUST 2021

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

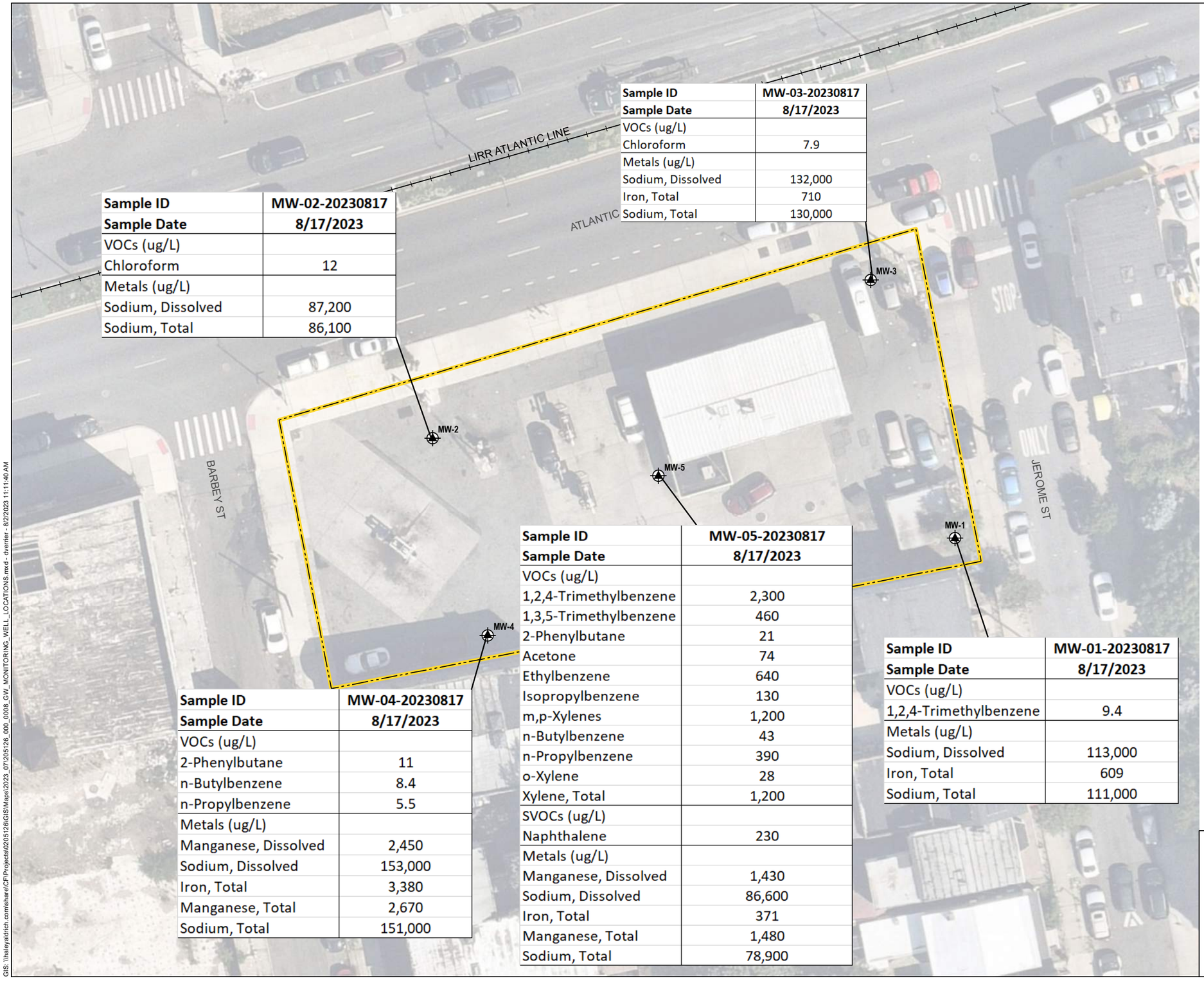
2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

GROUNDWATER CONTOUR MAP

MAY 2022

FIGURE 2

GIS: C:\Users\khensen\OneDrive - haleyaldrich.com\Desktop\KH_LOCAL\Phase_I\Former_Speedway_#7823\GIS\Maps\2021_09\000000_000_0002_SITE_PLAN.mxd - khensen - 9/6/2021 6:48:56 AM



Sample ID	MW-02-20230817
Sample Date	8/17/2023
VOCs (ug/L)	
Chloroform	12
Metals (ug/L)	
Sodium, Dissolved	87,200
Sodium, Total	86,100

Sample ID	MW-03-20230817
Sample Date	8/17/2023
VOCs (ug/L)	
Chloroform	7.9
Metals (ug/L)	
Sodium, Dissolved	132,000
Iron, Total	710
Sodium, Total	130,000

Sample ID	MW-04-20230817
Sample Date	8/17/2023
VOCs (ug/L)	
2-Phenylbutane	11
n-Butylbenzene	8.4
n-Propylbenzene	5.5
Metals (ug/L)	
Manganese, Dissolved	2,450
Sodium, Dissolved	153,000
Iron, Total	3,380
Manganese, Total	2,670
Sodium, Total	151,000

Sample ID	MW-05-20230817
Sample Date	8/17/2023
VOCs (ug/L)	
1,2,4-Trimethylbenzene	2,300
1,3,5-Trimethylbenzene	460
2-Phenylbutane	21
Acetone	74
Ethylbenzene	640
Isopropylbenzene	130
m,p-Xylenes	1,200
n-Butylbenzene	43
n-Propylbenzene	390
o-Xylene	28
Xylene, Total	1,200
SVOCs (ug/L)	
Naphthalene	230
Metals (ug/L)	
Manganese, Dissolved	1,430
Sodium, Dissolved	86,600
Iron, Total	371
Manganese, Total	1,480
Sodium, Total	78,900

Sample ID	MW-01-20230817
Sample Date	8/17/2023
VOCs (ug/L)	
1,2,4-Trimethylbenzene	9.4
Metals (ug/L)	
Sodium, Dissolved	113,000
Iron, Total	609
Sodium, Total	111,000

LEGEND

MONITORING WELL

UNDERGROUND COMMUTER RAIL LINE

SITE BOUNDARY

	New York TOGS 1.1.1 Ambient Water Quality Standards
VOCs (ug/L)	
1,2,4-Trimethylbenzene	5
1,3,5-Trimethylbenzene	5
2-Phenylbutane	5
Acetone	50
Chloroform	7
Ethylbenzene	5
Isopropylbenzene	5
m,p-Xylenes	5
n-Butylbenzene	5
n-Propylbenzene	5
o-Xylene	5
Xylene, Total	5
SVOCs (ug/L)	
Naphthalene	10
Metals (ug/L)	
Manganese, Dissolved	300
Sodium, Dissolved	20,000
Iron, Total	300
Manganese, Total	300
Sodium, Total	20,000

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: NEARMAP, 12 AUGUST 2021
3. CONCENTRATIONS ARE IN MICROGRAMS PER LITER (ug/L)
4. EXCEEDANCES OF NEW YORK TECHNICAL AND OPERATIONAL GUIDANCE SERIES (TOGS 1.1.1) AMBIENT WATER QUALITY STANDARDS ARE SHOWN.

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

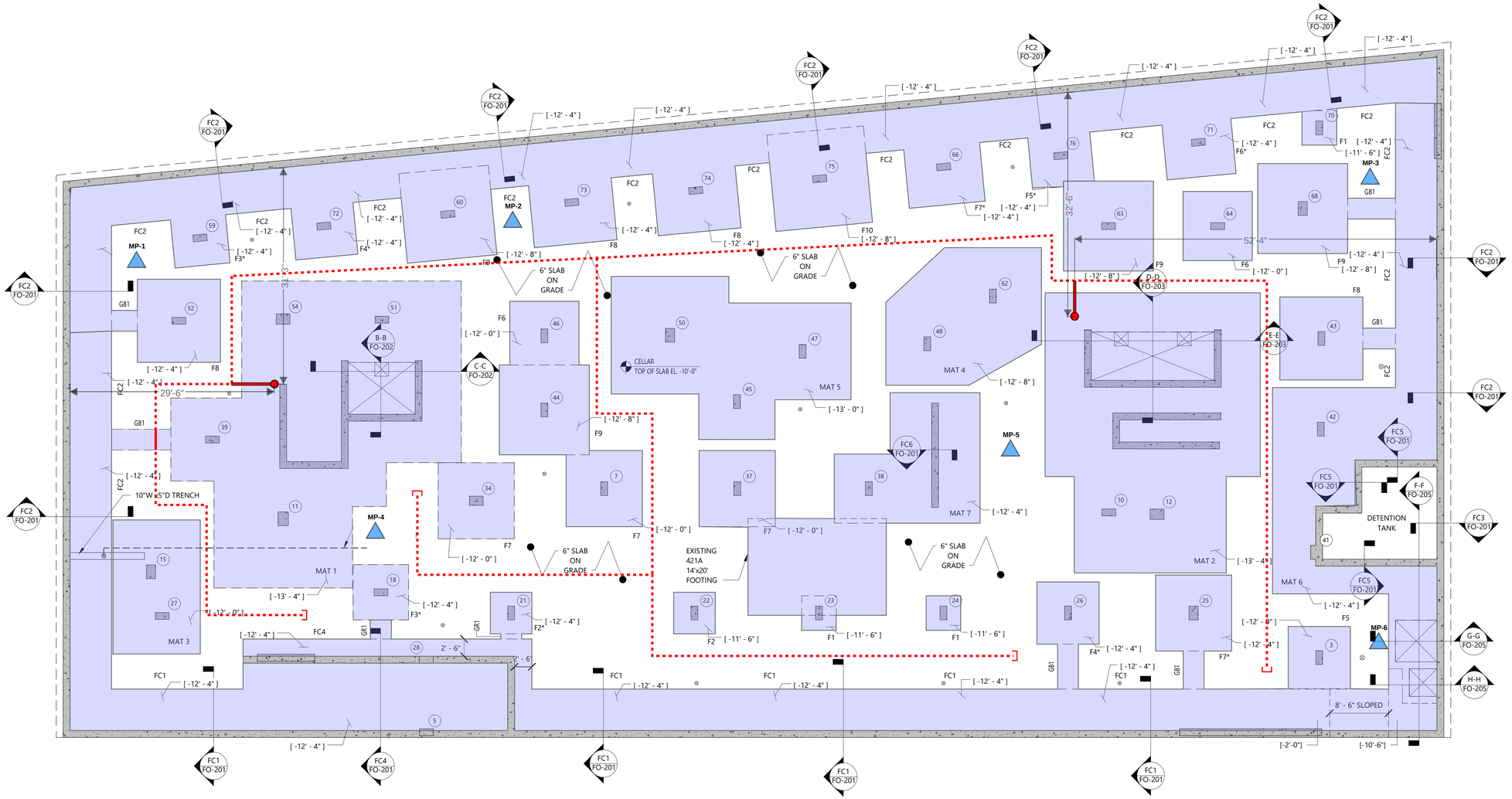
2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

REMAINING CONTAMINATION IN GROUNDWATER

SEPTEMBER 2023

FIGURE 3

GIS: \\haleyaldrich.com\share\CF\Projects\0205126\GIS\Maps\2023_07\205126_000_0008_GW_MONITORING_WELL_LOCATIONS.mxd - dverrier - 8/2/2023 11:11:40 AM



LEGEND

- MP-1 — SUB-SLAB MONITORING POINT
- 4" PERFORATED PVC PIPE
- 4" SOLID PVC PIPE
- 4" SOLID PVC LEADER PIPE
- 4" CAST IRON VERTICAL RISER PIPE
- PIPE END CAP
- FOUNDATION OR FOOTING

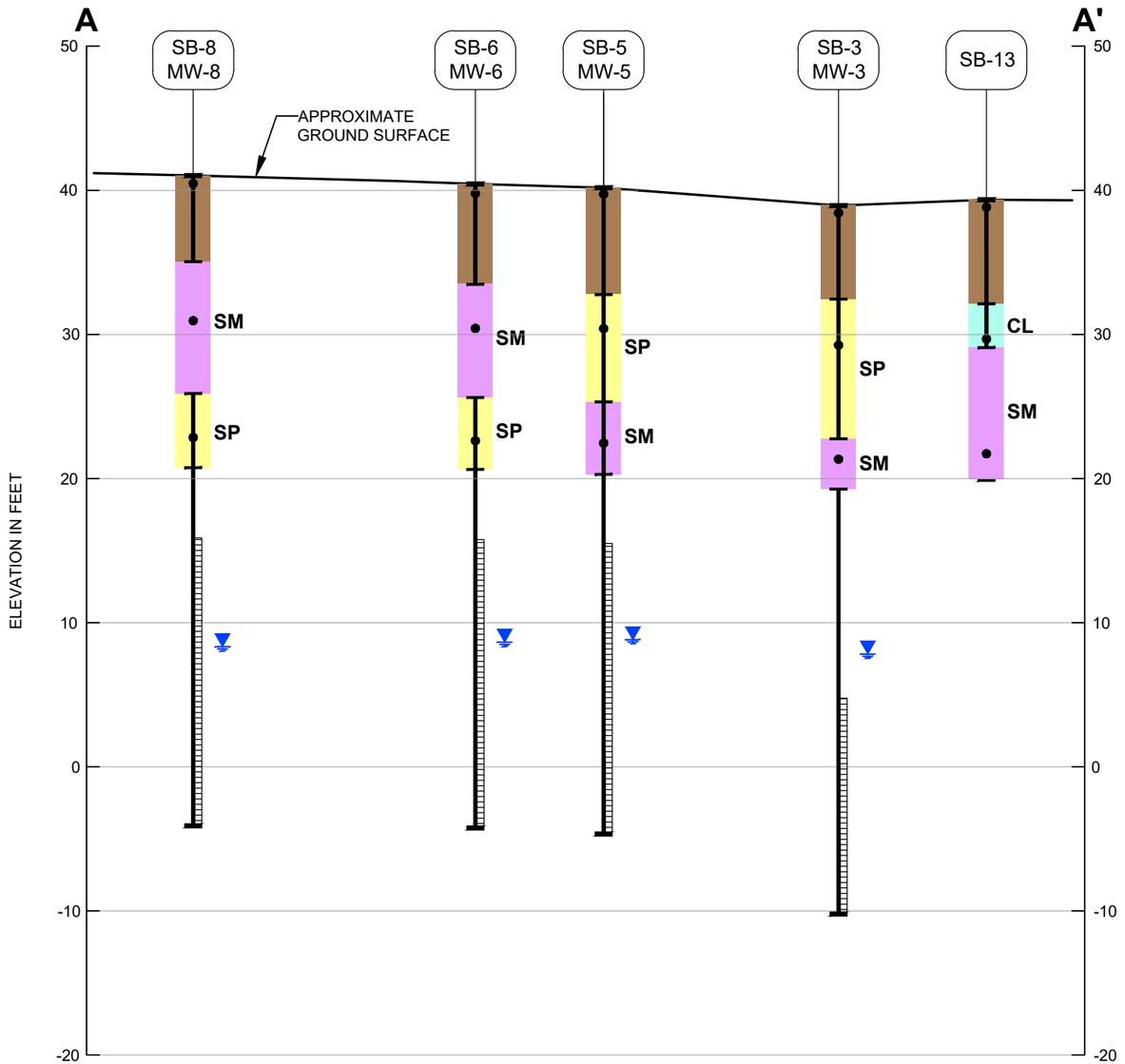
HALEY ALDRICH

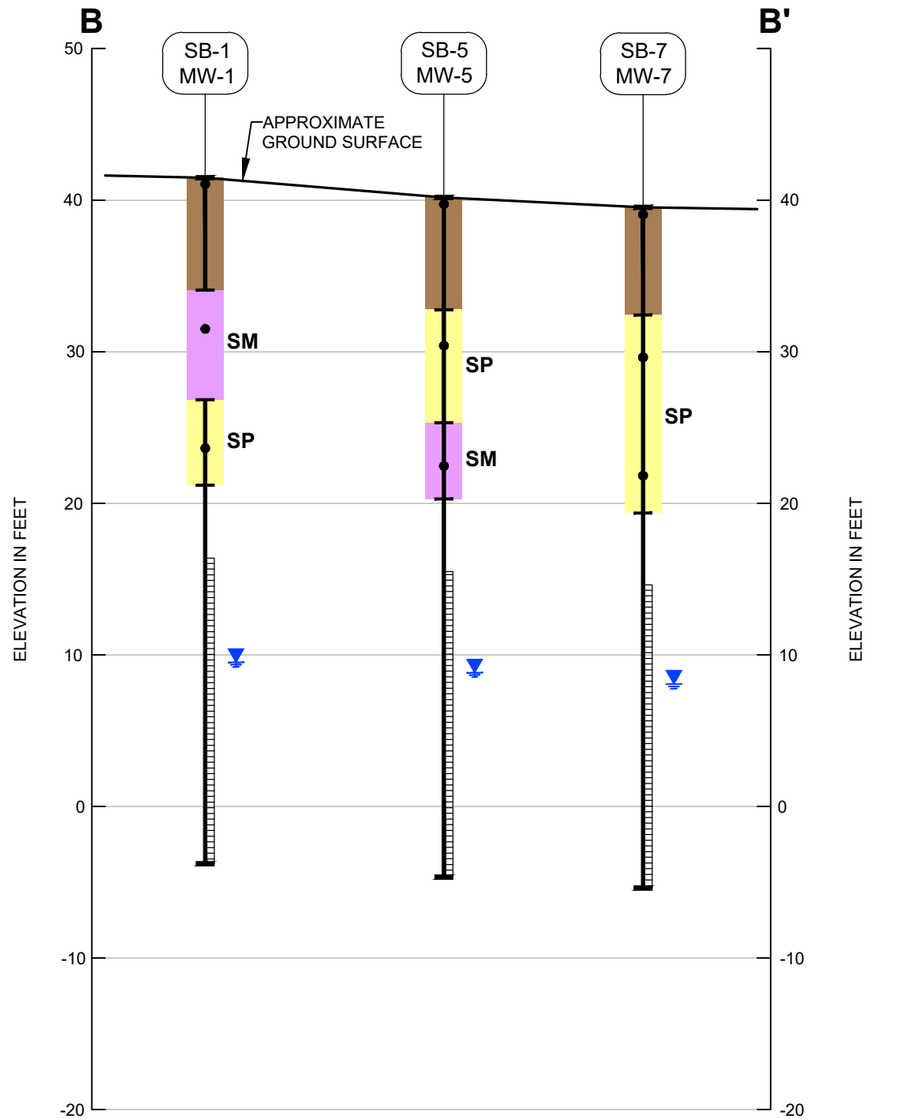
2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM AS-BUILT

SEPTEMBER 2023

FIGURE 4





LEGEND

SB-1
MW-1
EXPLORATION DESIGNATION

INDICATES SAMPLE COLLECTED

INTERPRETED GEOLOGIC STRATUM INTERFACE

GROUNDWATER WATER LEVEL

MONITORING WELL SCREEN INTERVAL

BOTTOM OF EXPLORATION

GEOLOGY KEY

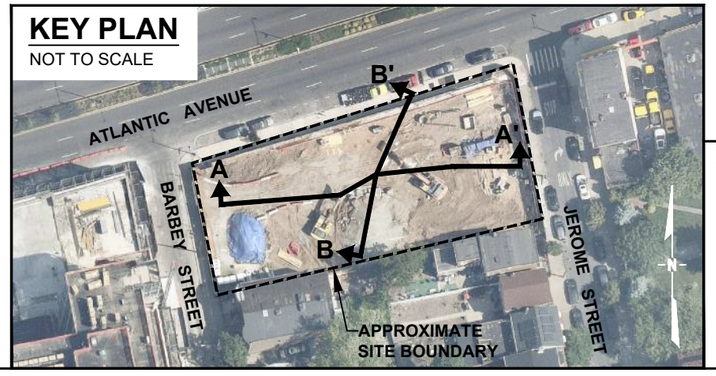
FILL

SP (POORLY GRADED SAND)

SM (SILTY SAND)

CL (LEAN CLAY)

KEY PLAN
NOT TO SCALE



HORIZ. 0 30 60
VERT. 0 10 20
SCALE IN FEET

HALEY ALDRICH

2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

GEOLOGIC CROSS SECTION A-A' AND B-B'

SCALE: AS SHOWN
NOVEMBER 2023

FIGURE 5

Saved by: TAM Printed: 11/21/2023 5:52 PM Sheet: B001
J:\GRAPHICS\020512\602051\26-000-B001.DWG

APPENDIX A
Environmental Easement and Site Survey

METES & BOUNDS DESCRIPTION: DEED OF RECORD

AS RECORDED IN CRFN 2022000136882, ON MARCH 31, 2022 IN THE NYC DEPARTMENT OF FINANCE, OFFICE OF THE CITY REGISTER

All that Certain Plot, Piece or parcel of land, situate, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at the intersection of the southerly line of Atlantic Avenue (120–feet wide right of way) with the easterly line of Barbey Street (50–feet wide right of way);

THENCE easterly, along the southerly line of Atlantic Avenue a distance of 200.93 feet to the westerly line of Jerome Street (A.K.A. John Street, A 50–foot wide right of way);

THENCE southerly, along said Westerly line of Jerome Street, forming an angle 84 degrees 28 minutes 36 seconds with the previous course, a distance of 99.66 feet (survey) 99.92 feet (99 feet 11 inches) (deed), to a point on the division line between Lot 11, Block 3965, Borough of Brooklyn, Kings County, City and State of New York (land now or formerly of Hess Retail Stores LLC, N/K/A Speedway LLC) and Lot 20, Block 3965 (land now or formerly of Antonia Cardona);

THENCE westerly, at right angle to the previous course, along the division line between said lot 11, on the northerly side, and Lot 20, Block 3965 and lot 10 Block 3665 (land now or formally of Jenny Adamez–Cruz), on the southerly side, said division line being also parallel with Liberty Avenue (a 60–feet wide right of way), a distance of 200.00 feet to the easterly line of Barbey Street;

THENCE northerly, along said easterly line, at right angle to the previous course, a distance of 80.33 feet (survey) 80.67 feet (80 feet 8 inches) more or less (deed) to the point or place of BEGINNING

The above described property having an area of 18,071 Square feet or 0.4149 Acre more or less.

METES & BOUNDS DESCRIPTION: ENVIRONMENTAL EASEMENT DESCRIPTION

All that Certain Plot, Piece or parcel of land, situate, lying and being in the Borough of Brooklyn, County of Kings, City and State of New York, bounded and described as follows:

BEGINNING at the intersection of the southerly line of Atlantic Avenue (120–feet wide right of way) with the easterly line of Barbey Street (50–feet wide right of way);

THENCE easterly, along the southerly line of Atlantic Avenue a distance of 200.93 feet to the westerly line of Jerome Street (A.K.A. John Street, A 50–foot wide right of way);

THENCE southerly, along said Westerly line of Jerome Street, forming an angle 84 degrees 32 minutes 10 seconds with the previous course, a distance of 99.92 feet, to a point on the division line between Lot 11, Block 3965, Borough of Brooklyn, Kings County, City and State of New York (land now or formerly of Hess Retail Stores LLC, N/K/A Speedway LLC) and Lot 20, Block 3965 (land now or formerly of Antonia Cardona);

THENCE westerly, at right angle to the previous course, along the division line between said lot 11, on the northerly side, and Lot 20, Block 3965 and lot 10 Block 3665 (land now or formerly of Jenny Adamez–Cruz), on the southerly side, said division line being also parallel with Liberty Avenue (a 60–feet wide right of way), a distance of 200.00 feet to the easterly line of Barbey Street;

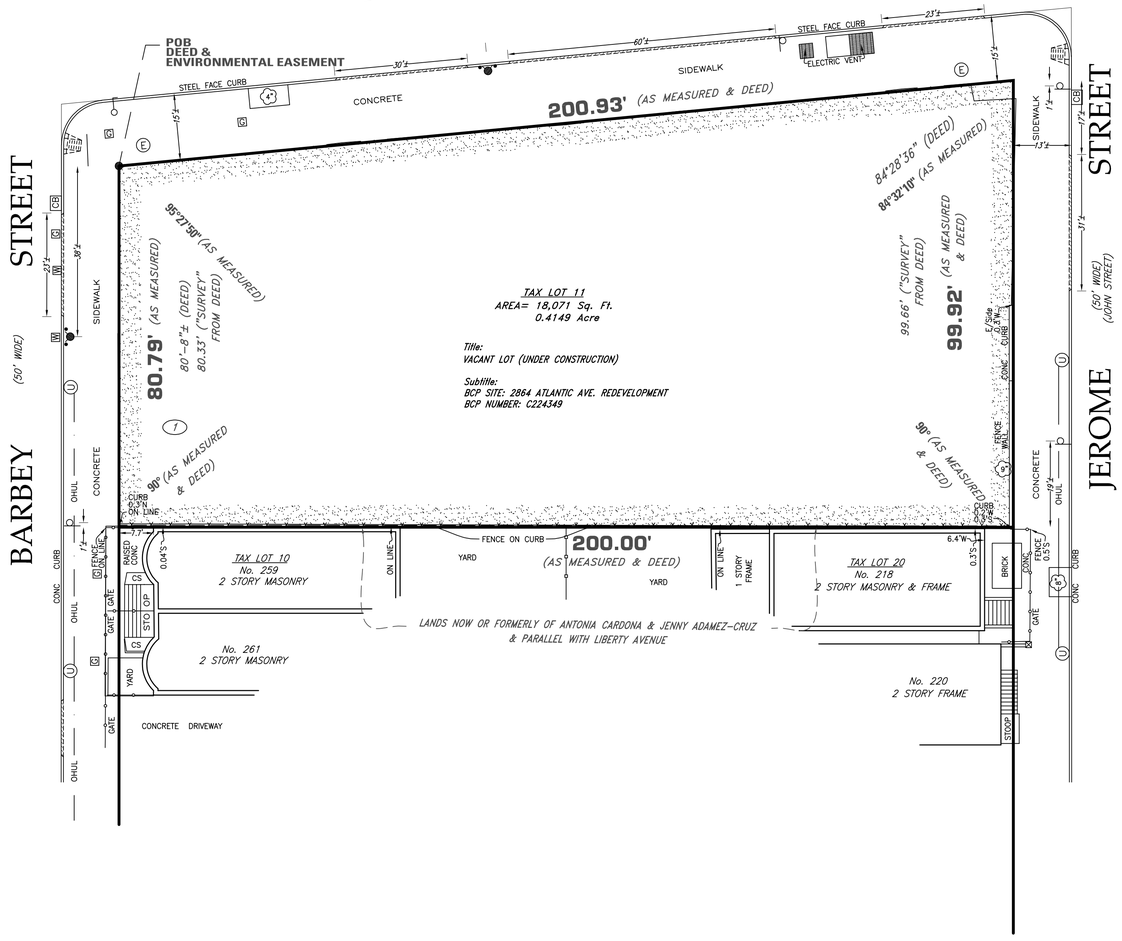
THENCE northerly, along said easterly line, at right angle to the previous course, a distance of 80.79 feet, which also forms an angle of 95 degrees 27 minutes 50 seconds with Atlantic Avenue to the point or place of BEGINNING.

The above described property having an area of 18,071 Square feet or 0.4149 Acre more or less.

NOTE:

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

The engineering and institutional controls for this Easement are set forth in more detail in the Site Management Plan (SMP). A copy of the SMP must be obtained by any party with an interest in the property. The SMP can be obtained from NYS Department of Environmental Conservation, Division of Environmental Remediation, Site Control Section, 625 Broadway, Albany, NY 12233 or at derweb@dec.ny.gov.



NOTES:

1. No investigation has been made with respect to subsurface structures or utilities.
2. This is to certify that there are no visible streams or natural water courses in the property unless shown on this survey.
3. Nonvisible easements, recorded or unrecorded, not shown hereon unless otherwise indicated.
4. By graphic plotting only this property is on flood insurance rate map panel 217 of 457 in community panel No. 360497 0217F; this panel is not printed.
5. Encroachments, Vaults and Easements, if any below surface is not shown hereon.
6. This survey is subject to any covenants, restrictions, easements & agreements of record contained within an up to date abstract of title.
7. The offsets shown are not to be used for the construction of any structure, fence, permanent addition, etc.
8. Temporary construction fences are not shown.

LEGEND

- OHUL ..... OVERHEAD UTILITY LINES
- CS ..... CELLAR STEPS
- © ..... UNKNOWN COVER
- (E) ..... ELECTRIC MANHOLE
- (U) ..... UTILITY POLE
- W ..... WATER VALVE
- G ..... GAS VALVE
- CB ..... CATCH BASIN
- ..... LIGHT POLE
- ..... STREET SIGN
- ..... HYDRANT
- ..... CURB CUT
- ..... PEDESTRIAN RAMP
- 8" ..... TREE & SIZE
- ..... IRON FENCE
- ..... VINYL FENCE
- ..... CHAIN LINK FENCE
- ..... PROPERTY LINE

Tax Block: 3965
Tax Lot: 11

PROPERTY SITUATED AT
2864 ATLANTIC AVENUE
BOROUGH OF BROOKLYN
COUNTY OF KINGS
CITY & STATE OF NEW YORK

Limits of Environmental Easement denoted thus:

0' 16' 32' 48'
0m 5m 10m 20m
SCALE 1" = 16'
(IN METERS AND FEET)

DATE	DESCRIPTION
May 18, 2023	Map Revised
May 17, 2023	Map Revised
May 9, 2023	Map Revised
April 12, 2023	Survey Updated & Environmental Easement Added
December 11, 2021	Date of Survey

ZDK715

STATE OF NEW YORK · RAMZAN ALLI · 050457 · LICENSED LAND SURVEYOR

Ramzan Alli License No. 050457

NY LAND SURVEYOR · Records of: Earl B. Lovell - S.P. Belcher Inc.

NY Land Surveyor P.C.
77-15 164 Street, Fresh Meadows, NY 11366
Tel: 718-591-6600 Tel: 212-732-1575
nylandsurveyor@gmail.com Fax: 631-930-3292
www.nylandsurveyor.com

NYC DEPARTMENT OF FINANCE
OFFICE OF THE CITY REGISTER

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

2023111601386001001EE50D

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 9**

Document ID: 2023111601386001 Document Date: 11-10-2023 Preparation Date: 11-16-2023
Document Type: EASEMENT
Document Page Count: 8

PRESENTER:
SIVE PAGET & RIESEL, P.C.
560 LEXINGTON AVENUE, 15TH FLOOR
NEW YORK, NY 10022
212-421-2150
NDUNCAN@SPRLAW.COM

RETURN TO:
SIVE PAGET & RIESEL, P.C.
560 LEXINGTON AVENUE, 15TH FLOOR
NEW YORK, NY 10022
212-421-2150
NDUNCAN@SPRLAW.COM

PROPERTY DATA

Borough	Block	Lot	Unit	Address
BROOKLYN	3965	11	Entire Lot	2864 ATLANTIC AVENUE

Property Type: NON-RESIDENTIAL VACANT LAND

CROSS REFERENCE DATA

CRFN_____ *or* DocumentID_____ *or* _____ Year____ Reel____ Page_____ *or* File Number_____

PARTIES

GRANTOR/SELLER:
2864 ATLANTIC REALTY LLC
40 OSER AVE., SUITE 4
HAUPPAUGE, NY 11788

GRANTEE/BUYER:
PEOPLE OF NEW YORK BY DEPT. ENVIRONMENTAL CONSERVA
625 BROADWAY
ALBANY, NY 12233

FEES AND TAXES

Mortgage :

Mortgage Amount:	$	0.00
Taxable Mortgage Amount:	$	0.00
Exemption:		
TAXES: County (Basic):	$	0.00
City (Additional):	$	0.00
Spec (Additional):	$	0.00
TASF:	$	0.00
MTA:	$	0.00
NYCTA:	$	0.00
Additional MRT:	$	0.00
TOTAL:	$	0.00
Recording Fee:	$	77.00
Affidavit Fee:	$	0.00

Filing Fee: $ 100.00

NYC Real Property Transfer Tax: $ 0.00

NYS Real Estate Transfer Tax: $ 0.00

RECORDED OR FILED IN THE OFFICE OF THE CITY REGISTER OF THE CITY OF NEW YORK
Recorded/Filed 11-21-2023 12:04
City Register File No.(CRFN): **2023000304719**

City Register Official Signature

ENVIRONMENTAL EASEMENT GRANTED PURSUANT TO ARTICLE 71, TITLE 36 OF THE NEW YORK STATE ENVIRONMENTAL CONSERVATION LAW

THIS INDENTURE made this 10th day of November, 2023, between Owner, 2864 Atlantic Realty LLC, having an office at 40 Oser Avenue, Suite 4, Hauppauge, New York 11788, County of Suffolk, State of New York (the "Grantor"), and The People of the State of New York (the "Grantee"), acting through their Commissioner of the Department of Environmental Conservation (the "Commissioner", or "NYSDEC" or "Department" as the context requires) with its headquarters located at 625 Broadway, Albany, New York 12233.

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

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

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

WHEREAS, Grantor, is the owner of real property located at the address of 2864 Atlantic Avenue in the City of New York, County of Kings and State of New York, known and designated on the tax map of the New York City Department of Finance as tax map parcel number: Block 3965 Lot 11, being the same as that property conveyed to Grantor by deed dated March 16, 2022 and recorded in the City Register of the City of New York as CRFN # 2022000136882. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.4149 +/- acres, and is hereinafter more fully described in the Land Title Survey dated December 11, 2021 and revised on April 12, 2023, May 9, 2023, May 17, 2023, and May 18, 2023 prepared by Ramzan Alli of NY Land Surveyor P.C., which will be attached to the Site Management Plan. The Controlled Property description is set forth in and attached hereto as Schedule A; and

WHEREAS, the Department accepts this Environmental Easement in order to ensure the protection of public health and the environment and to achieve the requirements for remediation

established for the Controlled Property until such time as this Environmental Easement is extinguished pursuant to ECL Article 71, Title 36; and

NOW THEREFORE, in consideration of the mutual covenants contained herein and the terms and conditions of Brownfield Cleanup Agreement Index Number: C224349-03-22, and amended by Amendment #1 dated June 8, 2022, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

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

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

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

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

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

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

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

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

(6) Data and information pertinent to Site Management of the Controlled

Property must be reported at the frequency and in a manner defined in the SMP;

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

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

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

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

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

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

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

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

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

This property is subject to an Environmental Easement held

by the New York State Department of Environmental Conservation pursuant to Title 36 of Article 71 of the Environmental Conservation Law.

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

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

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

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

(i) are in-place;

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

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

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

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

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

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

(7) the information presented is accurate and complete.

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

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

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

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

5. Enforcement

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

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

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

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

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

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

Parties shall address correspondence to:

Site Number: C224349
Office of General Counsel
NYSDEC
625 Broadway
Albany New York 12233-5500

With a copy to:

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

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

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

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

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

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

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

Remainder of Page Intentionally Left Blank

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

2864 Atlantic Realty LLC:

By: _____

Print Name: Jacob Kohn

Title: Authorized Signer Date: 10/10/23

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF kings)

On the 10 day of Oct., in the year 2023 before me, the undersigned, personally appeared Jacob Kohn, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their capacity(ies), and that by his/her/their signature(s) on the instrument, the individual(s), or the person upon behalf of which the individual(s) acted, executed the instrument.

_____
Notary Public - State of New York

JOSEPH MOSKOWITZ
Notary Public - State of New York
NO. 01MO6440351
Qualified in New York County
My Commission Expires Sep 6, 2026

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

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

Grantee's Acknowledgment

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

On the 10th day of Nov, in the year 2023 before me, the undersigned, personally appeared ~~Michael J. Ryan~~ Andrew O. Guglielmi, personally known to me or proved to me on the basis of satisfactory evidence to be the individual(s) whose name is (are) subscribed to the within instrument and acknowledged to me that he/she/ executed the same in his/her/ capacity as Designee of the Commissioner of the State of New York Department of Environmental Conservation, and that by his/her/ signature on the instrument, the individual, or the person upon behalf of which the individual acted, executed the instrument.

_____
Notary Public - State of New York

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

APPENDIX B
Excavation Work Plan

APPENDIX B EXCAVATION WORK PLAN (EWP)

B-1 Notification

At least 15 days prior to the start of any activity that is anticipated to encounter remaining contamination }„ „° Z }„ oı°„ ıZ° ']ı°[' }À°„ 'Ç'ı°uU ıZ° ']ı° }Áv°„ }„ ıZ°]„ „°›„°'°vı contacts listed in the table below. Table I includes contact information for the above notification. The information on this table will be updated as necessary to provide accurate contact information. A full listing of site-related contact information is provided in Table II of this SMP.

Table I: Notifications*

Madeliene Babick, NYSDEC Project Manager	518-402-8610, madeliene.babick@dec.ny.gov
Cris-Sandra Maycock, NYSDEC Supervisor	718-482-4679, cris-sandra.maycock@dec.ny.gov
Kelly Lewandowski, NYSDEC Site Control	518-402-9553, Kelly.lewandowski@dec.ny.gov

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

This notification will include:

- A detailed description of the work to be performed, including the location and areal extent of excavation, plans/drawings for site re-grading, intrusive elements or utilities to be installed below the soil cover, estimated volumes of contaminated soil to be excavated, any modifications of truck routes, and any work that may impact an engineering control;
- A summary of environmental conditions anticipated to be encountered in the work areas, including the nature and concentration levels of contaminants of concern, potential presence of grossly contaminated media, and plans for any pre-construction sampling;
- A schedule for the work, detailing the start and completion of all intrusive work;
- A summary of the applicable components of this EWP;
- A statement that the work will be performed in compliance with this EWP, 29 CFR 1910.120 and 29 CFR 1926 Subpart P;
- A copy of the }vı„ ı}„ health and safety plan (HASP), in electronic format, if it differs from the HASP provided in Appendix G of this SMP;
- Identification of disposal facilities for potential waste streams; and
- Identification of sources of any anticipated backfill, along with the required request to import form and all supporting documentation including, but not limited to, chemical testing results.

The NYSDEC project manager will review the notification and may impose additional requirements for the excavation that are not listed in this EWP.

B-2 Soil Screening Methods

Visual, olfactory and instrument-based (e.g. photoionization detector) soil screening will be performed during all excavations into known or potentially contaminated material (remaining contamination) or a breach of the cover system. A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will perform the screening. Soil screening will be performed when invasive work is done and will include all excavation and invasive work performed during development, such as excavations for foundations and utility work, after issuance of the COC.

Soils will be segregated based on previous environmental data and screening results into material that requires off-site disposal and material that requires testing to determine if the material can be reused on-site as soil beneath a cover or if the material can be used as cover soil. Further discussion of off-site disposal of materials and on-site reuse is provided in Sections B-6 and B-7 of this Appendix.

B-3 Soil Staging Methods

Soil stockpiles will be continuously encircled with a berm and/or silt fence. Hay bales will be used as needed near catch basins, surface waters and other discharge points.

Stockpiles will be kept covered at all times with appropriately anchored tarps. Stockpiles will be routinely inspected and damaged tarp covers will be promptly replaced.

Stockpiles will be inspected at a minimum once each week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

B-4 Materials Excavation and Load-Out

A qualified environmental professional as defined in 6 NYCRR Part 375, a PE who is licensed and registered in New York State, or a qualified person who directly reports to a PE who is licensed and registered in New York State will oversee all invasive work and the excavation and load-out of all excavated material.

The owner of the property and remedial party (if applicable) and its contractors are responsible for safe execution of all invasive and other work performed under this Plan.

The presence of utilities and easements on the site will be investigated by the qualified environmental professional. It will be determined whether a risk or impediment to the planned work under this SMP is posed by utilities or easements on the site. A site utility stakeout will be completed for all utilities prior to any ground intrusive activities at the site.

Loaded vehicles leaving the site will be appropriately lined, tarped, securely covered, manifested, and placarded in accordance with appropriate Federal, State, local, and NYSDOT requirements (and all other applicable transportation requirements).

A truck wash will be operated on-site, as appropriate. The qualified environmental professional will be responsible for ensuring that all outbound trucks will be washed at the truck wash before leaving the site

until the activities performed under this section are complete. Truck wash waters will be collected and disposed of off-site in an appropriate manner.

Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site soil tracking.

The qualified environmental professional will be responsible for ensuring that all egress points for truck and equipment transport from the site are clean of dirt and other materials derived from the site during intrusive excavation activities. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials. Material accumulated from the street cleaning and egress cleaning activities will be disposed off-site at a permitted landfill facility in accordance with all applicable local, State, and Federal regulations.

B-5 Materials Transport Off-Site

All transport of materials will be performed by licensed haulers in accordance with appropriate local, State, and Federal regulations, including 6 NYCRR Part 364. Haulers will be appropriately licensed and trucks properly placarded.

Material transported by trucks exiting the site will be secured with tight-fitting covers. Loose-fitting canvas-type truck covers will be prohibited. If loads contain wet material capable of producing free liquid, truck liners will be used.

Truck transport routes are as follows: Trucks will enter the Site from the north side on Atlantic Avenue and exit by turning right onto Atlantic Avenue from the designated point of egress along the northern boundary of the Site. All trucks loaded with site materials will exit the vicinity of the site using this approved truck route. This is the most appropriate route and takes into account: (a) limiting transport through residential areas and past sensitive sites; (b) use of city mapped truck routes; (c) prohibiting off site queuing of trucks entering the facility; (d) limiting total distance to major highways; (e) promoting safety in access to highways; and (f) overall safety in transport. A figure depicting the approved route is provided in this EWP.

Trucks will be prohibited from stopping and idling in the neighborhood outside the project site.

Egress points for truck and equipment transport from the site will be kept clean of dirt and other materials during site remediation and development.

Queuing of trucks will be performed on-site in order to minimize off-site disturbance. Off-site queuing will be prohibited.

B-6 Materials Disposal Off-Site

All material excavated and removed from the site will be treated as contaminated and regulated material and will be transported and disposed off-site in a permitted facility in accordance with all local, State and Federal regulations. If disposal of material from this site is proposed for unregulated off-site disposal (i.e. clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC project manager. Unregulated off-site management of materials from this site will not occur without formal NYSDEC project manager approval.

Off-site disposal locations for excavated soils will be identified in the pre-excavation notification. This will include estimated quantities and a breakdown by class of disposal facility if appropriate, (e.g. hazardous waste disposal facility, solid waste landfill, petroleum treatment facility, C&D debris recovery facility) Actual disposal quantities and associated documentation will be reported to the NYSDEC in the Periodic Review Report. This documentation will include, but will not be limited to: waste profiles, test results, facility acceptance letters, manifests, bills of lading and facility receipts.

Non-hazardous historic fill and contaminated soils taken off-site will be handled consistent with 6 NYCRR Parts 360, 361, 362, 363, 364 and 365. Material that does not meet Unrestricted SCOs is prohibited from being taken to a New York State C&D debris recovery facility (6 NYCRR Subpart 360-15 registered or permitted facility).

B-7 Materials Reuse On-Site

The qualified environmental professional as defined in 6 NYCRR part 375 will ensure that procedures defined for materials reuse in this SMP are followed and that unacceptable material (i.e. contaminated) does not remain on-site. Contaminated on-site material, including historic fill and contaminated soil, that is acceptable for reuse on-site will be placed below the demarcation layer or impervious surface, and will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines.

Proposed materials for reuse on-site must be sampled for full suite analytical parameters including per and polyfluoroalkyl substances (PFAS) and 1,4-dioxane. The sampling frequency will be in accordance with DER-10 Table 5.4(e)10 unless prior approval is obtained from the NYSDEC project manager for modification of the sampling frequency. The analytical results of soil/fill material testing must meet the site use criteria presented in NYSDEC-DER Appendix 5 Allowable Constituent Levels for Imported Fill or Soil for all constituents listed, and the NYSDEC Sampling, Analysis, and Assessment of Per Polyfluoroalkyl Substances April 2023 guidance values. Approvals for modifications to the analytical parameters must be obtained from the NYSDEC project manager prior to the sampling event.

Soil/fill material for reuse on-site will be segregated and staged as described in Section B-2 and B-3 of this EWP. The anticipated size and location of stockpiles will be provided in the 15-day notification to the NYSDEC project manager. Stockpile locations will be based on the location of site excavation activities and proximity to nearby site features. Material reuse on-site will comply with requirements of NYSDEC-DER 10 Section 5.4(e)4. Any modifications to the requirements of DER-10 Section 5.4(e)4 must be approved by the NYSDEC project manager.

Any demolition material proposed for reuse on-site will be sampled for asbestos and the results will be reported to the NYSDEC for acceptance. Concrete crushing or processing on-site will not be performed without prior NYSDEC approval. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site will not be reused on-site.

B-8 Fluids Management

All liquids to be removed from the site, including but not limited to, excavation dewatering, decontamination waters and groundwater monitoring well purge and development waters, will be handled, transported, and disposed off-site at a permitted facility in accordance with applicable local, State, and Federal regulations. Dewatering, purge and development fluids will not be recharged back to

the land surface or subsurface of the site, and will be managed off-site, unless prior approval is obtained from NYSDEC.

Discharge of water generated during large-scale construction activities to surface waters (i.e. a local pond, stream or river) will be performed under a SPDES permit.

B-9 Backfill from Off Site Sources

All materials proposed for import onto the site will be approved by the qualified environmental professional, as defined in 6 NYCRR Part 375, and will be in compliance with provisions in this SMP prior to receipt at the site. A Request to Import/Reuse Fill or Soil form, which can be found at http://www.dec.ny.gov/regulations/67386.html, will be prepared and submitted to the NYSDEC project manager allowing a minimum of 5 business days for review. A copy of the form is presented in Appendix E of this SMP.

Material from industrial sites, spill sites, other environmental remediation sites, or potentially contaminated sites will not be imported to the site.

All imported soils will meet the backfill and cover soil quality standards established in 6 NYCRR 375-6.7(d) and DER-10 Appendix 5 for residential use. Based on an evaluation of the land use, protection of groundwater and protection of ecological resources criteria, the resulting soil quality standards meet Track 1 Unrestricted Use Soil Cleanup Objectives. Soils that meet Z P ° v ° fill requirements under 6 NYCRR Part 360.13, but do not meet backfill or cover soil objectives for this site, will not be imported onto the site without prior approval by NYSDEC project manager. Soil material will be sampled for the full suite of analytical parameters, including PFAS and 1, 4-dioxane. Solid waste will not be imported onto the site.

Trucks entering the site with imported soils will be securely covered with tight fitting covers. Imported soils will be stockpiled separately from excavated materials and covered to prevent dust releases.

B-10 Stormwater Pollution Prevention

Barriers and hay bale checks will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC. All necessary repairs shall be made immediately.

Accumulated sediments will be removed as required to keep the barrier and hay bale check functional.

All undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials.

Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering.

Erosion and sediment control measures identified in the SMP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters.

Silt fencing or hay bales will be installed around the entire perimeter of the construction area.

B-11 Excavation Contingency Plan

If underground tanks or other previously unidentified contaminant sources are found during post remedial subsurface excavations or development related construction, excavation activities will be suspended until sufficient equipment is mobilized to address the condition. The NYSDEC project manager will be promptly notified of the discovery.

Sampling will be performed on product, sediment and surrounding soils, etc. as necessary to determine the nature of the material and proper disposal method. Chemical analysis will be performed for a full list of analytes [TAL metals, TCL volatiles and semi-volatiles (including 1,4-dioxane), TCL pesticides and PCBs, and PFAS], unless the site history and previous sampling results provide sufficient justification to limit the list of analytes. In this case, a reduced list of analytes will be proposed to the NYSDEC project manager for approval prior to sampling. Any tanks will be closed as per NYSDEC regulations and guidance.

Identification of unknown or unexpected contaminated media identified by screening during invasive site Á}„l Á]oo ° ›„}u›ıoÇ }uuµv] ı°^ Ç ›Z}v° Á]ıZ]v ıÁ} Z}µ„' ı} Ez^˘ Reportable quantities of petroleum product will also be reported to the NYSDEC spills hotline. These findings will be also included in the Periodic Review Report.

B-12 Community Air Monitoring Plan

A figure showing the location of air sampling stations based on generally prevailing wind conditions is provided in this EWP. These locations will be adjusted on a daily or more frequent basis based on actual wind directions to provide an upwind and at least two downwind monitoring stations.

Exceedances of action levels listed in the CAMP will be reported to NYSDEC and NYSDOH Project Managers.

B-12A: Special Requirements for Work Within 20 Feet of Potentially Exposed Individuals or Structures

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 residential settings.

- If total VOC concentrations opposite the walls of occupied structures or next to intake vents exceed 1 part-per-million, monitoring should occur within the occupied structure(s). Depending upon the nature of contamination, chemical-specific colorimetric tubes of sufficient sensitivity may be necessary for comparing the exposure point concentrations with appropriate pre-determined response levels (response actions should also be pre-determined). 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 micrograms per cubic meter, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to 150 micrograms per cubic meter 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.

B-13 Odor Control Plan

This odor control plan is capable of controlling emissions of nuisance odors on-site and off-site. If nuisance odors are identified at the site boundary, or if odor complaints are received, work will be halted and the source of odors will be identified and corrected. Work will not resume until all nuisance odors have been abated. NYSDEC and NYSDOH will be notified of all odor events and of any other complaints about the project. Implementation of all odor controls, including the halt of work, is the responsibility of the „°u°^]o›„ıÇ[’Z°u°^]ı]}v ˝vP]v°°„U v^ vÇ u° ’µ„°’ ıZ ı „°]u›o°u°vı° Periodic Review Report.

All necessary means will be employed to prevent on- and off-site nuisances. At a minimum, these measures will include: (a) limiting the area of open excavations and size of soil stockpiles; (b) shrouding open excavations with tarps and other covers; and (c) using foams to cover exposed odorous soils. If odors develop and cannot be otherwise controlled, additional means to eliminate odor nuisances will include: (d) direct load-out of soils to trucks for off-site disposal; (e) use of chemical odorants in spray or misting systems; and, (f) use of staff to monitor odors in surrounding neighborhoods.

If nuisance odors develop during intrusive work that cannot be corrected, or where the control of nuisance odors cannot otherwise be achieved due to site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering the excavation and handling areas in a temporary containment structure equipped with appropriate air venting/filtering systems.

B-14 Dust Control Plan

Particulate monitoring must be conducted according to the Community Air Monitoring Plan (CAMP) provided in Section B-12. If particulate levels at the site exceed the thresholds listed in the CAMP or if airborne dust is observed on the site or leaving the site, the dust suppression techniques listed below will be employed. The remedial party will also take measures listed below to prevent dust production on the site.

A dust suppression plan that addresses dust management during invasive on-site work will include, at a minimum, the items listed below:

- Dust suppression will be achieved using a dedicated on-site water truck for road wetting. The truck will be equipped with a water cannon capable of spraying water directly onto off-road areas including excavations and stockpiles.

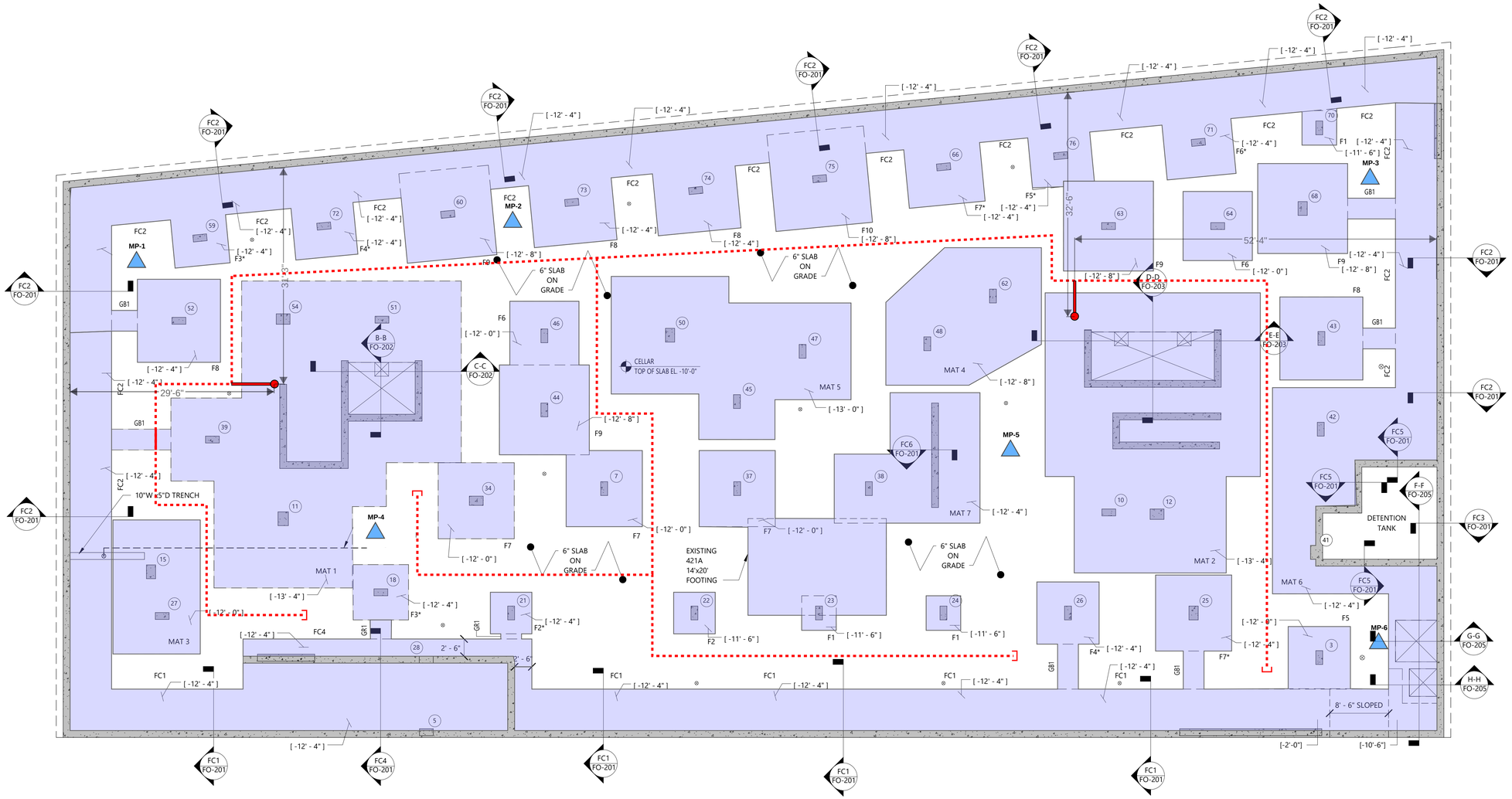
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, unvegetated soils vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water truck sprinkling.

B-15 Other Nuisances

A plan for rodent control will be developed and utilized by the contractor prior to and during site clearing and site grubbing, and during all remedial work.

A plan will be developed and utilized by the contractor for all remedial work to ensure compliance with local noise control ordinances.

APPENDIX C
As-Built Surveys, Vapor Barrier Manufacturer's Specifications



LEGEND

- MP-1 — SUB-SLAB MONITORING POINT
- 4" PERFORATED PVC PIPE
- 4" SOLID PVC PIPE
- 4" SOLID PVC LEADER PIPE
- 4" CAST IRON VERTICAL RISER PIPE
- PIPE END CAP
- FOUNDATION OR FOOTING

HALEY ALDRICH

2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM AS-BUILT

SEPTEMBER 2023

APPENDIX C

STEGO® WRAP 20-MIL VAPOR BARRIER

A STEGO INDUSTRIES, LLC INNOVATION | VAPOR RETARDERS 07 26 00, 03 30 00 | VERSION: DEC 8, 2022

1. PRODUCT NAME

STEGO WRAP 20-MIL VAPOR BARRIER

2. MANUFACTURER

Stego Industries, LLC
216 Avenida Fabricante, Suite 101
San Clemente, CA 92672 USA
Sales, Technical Assistance
Ph: (877) 464-7834
contact@stegoindustries.com
stegoindustries.com

3. PRODUCT DESCRIPTION

USES: Stego Wrap 20-Mil Vapor Barrier is used as a below-slab vapor barrier.

COMPOSITION: Stego Wrap 20-Mil Vapor Barrier is a multi-layer plastic extrusion manufactured with only the highest grade of prime, virgin, polyolefin resins.

ENVIRONMENTAL FACTORS: Stego Wrap 20-Mil Vapor Barrier can be used in systems for the control of soil gases (radon, methane), soil poisons (oil by-products) and sulfates.

4. TECHNICAL DATA

TABLE 4.1: PHYSICAL PROPERTIES OF STEGO WRAP 20-MIL VAPOR BARRIER

PROPERTY	TEST	RESULTS
Under Slab Vapor Retarders	ASTM E1745 Class A, B & C – Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs	Exceeds Class A, B & C
Water Vapor Permeance	ASTM F1249 – Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor	0.0071 perms
Permeance After Conditioning (ASTM E1745 Sections 7.1.2 - 7.1.5)	ASTM E154 Section 8, F1249 – Permeance after wetting, drying, and soaking ASTM E154 Section 11, F1249 – Permeance after heat conditioning ASTM E154 Section 12, F1249 – Permeance after low temperature conditioning ASTM E154 Section 13, F1249 – Permeance after soil organism exposure	0.0088 perms 0.0081 perms 0.0084 perms 0.0077 perms
Methane Transmission Rate	ASTM D1434 - Standard Test Method for Determining Gas Permeability Characteristics of Plastic Film and Sheeting	152.2 GTR* (mL(STP)/m^2*day)
Radon Diffusion Coefficient	K124/02/95	9.9 x 10^{-12} m^2/second
Puncture Resistance	ASTM D1709 – Test Method for Impact Resistance of Plastic Film by Free-Falling Dart Method	3500+ grams**
Tensile Strength	ASTM D882 – Test Method for Tensile Properties of Thin Plastic Sheeting	97.7 lbf/in
Thickness		20 mil
Roll Dimensions	width x length: area:	14' x 105' 1470 ft^2
Roll Weight		152 lb

Note: perm unit = grains/(ft^2*hr*in-Hg)

*GTR = Gas Transmission Rate

**The material maxed out the testing equipment and did not fail at 3746 grams.

Continued...
Note – legal notice on page 2.

STEGO® WRAP 20-MIL VAPOR WRAP BARRIER

A STEGO INDUSTRIES, LLC INNOVATION | VAPOR RETARDERS 07 26 00, 03 30 00 | VERSION: DEC 8, 2022

5. INSTALLATION

UNDER SLAB: Unroll Stego Wrap 20-Mil Vapor Barrier over an aggregate, sand or tamped earth base. Overlap all seams a minimum of 6 inches and tape using Stego® Tape or Stego® Crete Claw® Tape. All penetrations must be sealed using a combination of Stego Wrap and Stego Accessories.

For additional information, please refer to Stego's complete installation instructions.

6. AVAILABILITY & COST

Stego Wrap 20-Mil Vapor Barrier is available through our network of building supply distributors. For current cost information, contact your local Stego distributor or Stego Industries' Sales Representative.

7. WARRANTY

Stego Industries, LLC believes to the best of its knowledge, that specifications and recommendations herein are accurate and reliable. However, since site conditions are not within its control, Stego Industries does not guarantee results from the use of the information provided herein. Stego Industries, LLC does offer a limited warranty on Stego Wrap. Please see **stegoindustries.com/legal**

8. MAINTENANCE

None required.

9. TECHNICAL SERVICES

Technical advice, custom CAD drawings, and additional information can be obtained by contacting Stego Industries or by visiting the website.

Email: contact@stegoindustries.com
Contact Number: (877) 464-7834
Website: **stegoindustries.com**

10. FILING SYSTEMS: stegoindustries.com

APPENDIX D
QAPP

HALEY ALDRICH

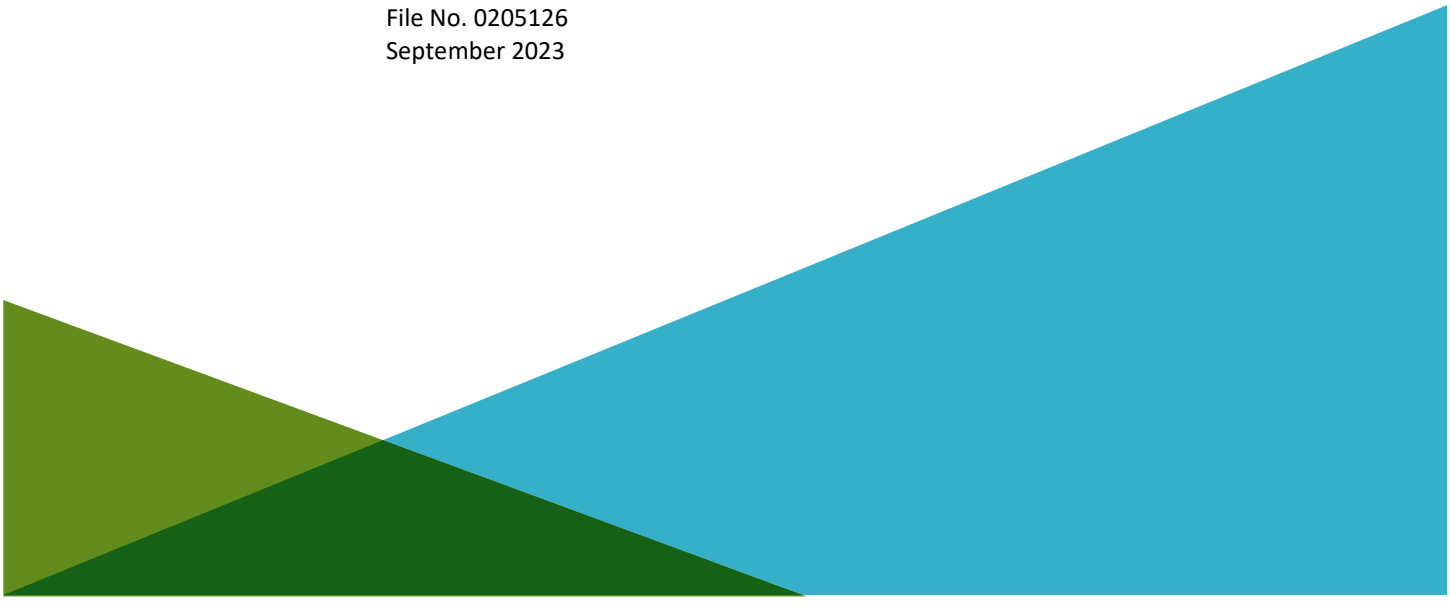
www.haleyaldrich.com

QUALITY ASSURANCE PROJECT PLAN
2864 ATLANTIC AVE
BROOKLYN, NEW YORK

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

for
2864 Atlantic Realty LLC
40 Oser Avenue, Suite 4
Hauppauge, New York 11788

File No. 0205126
September 2023



Executive Summary

This Quality Assurance Project Plan (QAPP) outlines the scope of the quality assurance and quality control (QA/QC) activities associated with the site monitoring activities associated with the Site Management Plan (SMP) for 2864 Atlantic Ave (Site) in Brooklyn, New York.

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.

Table of Contents

Page

Executive Summary i
List of Tables v
List of Figures v

1. Project Description 1

1.1 PROJECT OBJECTIVES 1
1.2 SITE DESCRIPTION AND HISTORY 1
1.3 LABORATORY PARAMETERS 1
1.4 SAMPLING LOCATIONS 1

2. Project Organization and Responsibilities 2

2.1 MANAGEMENT RESPONSIBILITIES 2
2.2 QUALITY ASSURANCE RESPONSIBILITIES 2
2.2.1 Quality Assurance (QA) Officer 2
2.2.2 Data Validation Staff 2
2.3 LABORATORY RESPONSIBILITIES 3
2.3.1 Laboratory Project Manager 3
2.3.2 Laboratory Operations Manager 3
2.3.3 Laboratory QA Officer 3
2.3.4 Laboratory Sample Custodian 3
2.3.5 Laboratory Technical Personnel 3
2.4 FIELD RESPONSIBILITIES 4
2.4.1 Field Coordinator 4
2.4.2 Field Team Personnel 4

3. Sampling Procedures 5

3.1 SAMPLE CONTAINERS 5
3.2 SAMPLE LABELING 5
3.3 DECONTAMINATION PROCEDURES 5
3.4 FIELD QC SAMPLE COLLECTION 5
3.4.1 Field Duplicate Sample Collection 5

4. Custody Procedures 8

4.1 FIELD CUSTODY PROCEDURES 8
4.1.1 Field Procedures 9
4.1.2 Transfer of Custody and Shipment Procedures 9
4.2 LABORATORY CHAIN-OF-CUSTODY PROCEDURES 10
4.3 STORAGE OF SAMPLES 10
4.4 FINAL PROJECT FILES CUSTODY PROCEDURES 10

Table of Contents

		Page
5.	**Calibration Procedures and Frequency**	**12**
5.1	FIELD INSTRUMENT CALIBRATION PROCEDURES	12
5.2	LABORATORY INSTRUMENT CALIBRATION PROCEDURES	12
6.	**Analytical Procedures**	**13**
6.1	FIELD ANALYTICAL PROCEDURES	13
6.2	LABORATORY ANALYTICAL PROCEDURES	13
6.2.1	List of Project Target Compounds and Laboratory Detection Limits	13
6.2.2	List of Method Specific Quality Control (QC) Criteria	13
7.	**Internal Quality Control Checks**	**14**
7.1	FIELD QUALITY CONTROL	14
7.1.1	Field Blanks	14
7.1.2	Trip Blanks	14
7.2	LABORATORY PROCEDURES	14
7.2.1	Field Duplicate Samples	14
7.2.2	Matrix Spike Samples	15
7.2.3	Laboratory Control Sample (LCS) Analyses	15
7.2.4	Surrogate Compound/Internal Standard Recoveries	15
7.2.5	Calibration Verification Standards	16
7.2.6	Laboratory Method Blank Analyses	16
8.	**Data Quality Objectives**	**17**
8.1	PRECISION	17
8.1.1	Definition	17
8.1.2	Field Precision Sample Objectives	17
8.1.3	Laboratory Precision Sample Objectives	17
8.2	ACCURACY	18
8.2.1	Definition	18
8.2.2	Field Accuracy Objectives	18
8.3	LABORATORY ACCURACY OBJECTIVES	18
8.4	REPRESENTATIVENESS	19
8.4.1	Definition	19
8.4.2	Measures to Ensure Representativeness of Field Data	19
8.5	COMPLETENESS	19
8.5.1	Definition	19
8.5.2	Field Completeness Objectives	19
8.5.3	Laboratory Completeness Objectives	19
8.6	COMPARABILITY	19
8.6.1	Definition	19
8.6.2	Measures to Ensure Comparability of Laboratory Data	20

Table of Contents

Page

8.7 LEVEL OF QUALITY CONTROL EFFORT 20

9. Data Reduction, Validation and Reporting 21

9.1 DATA REDUCTION 21
9.1.1 Field Data Reduction Procedures 21
9.1.2 Laboratory Data Reduction Procedures 21
9.1.3 Quality Control Data 21
9.2 DATA VALIDATION 21
9.3 DATA REPORTING 22

10. Performance and System Audits 23

10.1 FIELD PERFORMANCE AND SYSTEM AUDITS 23
10.1.1 Internal Field Audit Responsibilities 23
10.1.2 External Field Audit Responsibilities 23
10.2 LABORATORY PERFORMANCE AND SYSTEM AUDITS 23
10.2.1 Internal Laboratory Audit Responsibilities 23
10.2.2 External Laboratory Audit Responsibilities 24

11. Preventive Maintenance 25

11.1 FIELD INSTRUMENT PREVENTIVE MAINTENANCE 25
11.2 LABORATORY INSTRUMENT PREVENTIVE MAINTENANCE 25

12. Specific Routine Procedures Used to Assess Data Precision, Accuracy, and Completeness 26

12.1 FIELD MEASUREMENTS 26
12.2 LABORATORY DATA 26

13. Quality Assurance (QA) Reports 28

References 29

List of Tables

Table No.	Title
I	Analytical Methods and Quality Assurance Summary Table

List of Figures

Figure No.	Title
1	Post-Remedial Groundwater Monitoring Well Locations

1. Project Description

This Quality Assurance Project Plan (QAPP) has been prepared as a component of the SMP for the 2864 Atlantic Avenue Site in Brooklyn, New York.

1.1 PROJECT OBJECTIVES

The primary objective for data collection activities is to collect sufficient data necessary to confirm the results of the previous site characterization activities, potentially identify an on-site source, and to determine a course for remedial action. In addition, a qualitative exposure assessment will be conducted and will consider the nature of populations currently exposed or that have the potential to be exposed to Site-related contaminants both on- and off-site, along with describing the reasonably anticipated future land use of the site and affected off-site areas.

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 SMP for the Site and incorporated herein by reference.

1.3 LABORATORY PARAMETERS

-

The laboratory parameters for groundwater include:

- Target Compound List VOCs using USEPA method 8260B

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

1.4 SAMPLING LOCATIONS

The SMP provides the locations of groundwater monitoring well locations that may be sampled as part of implementation of the remedy. The post-remedial groundwater monitoring well locations is included as Figure 1.

2. Project Organization and Responsibilities

This section defines the roles and responsibilities of the individuals who will perform the SMP monitoring activities. A NYSDOH certified analytical laboratory will perform the analyses of environmental samples collected at the Site. Alpha Analytical Laboratories, Inc. of Westborough, Massachusetts (Certification No. 07010T) (Alpha) is a New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP)-certified laboratory (ELAP No. 11148) and will be responsible for analyzing the samples as per the analyses and methods identified in this QAPP.

2.1 MANAGEMENT RESPONSIBILITIES

The Project Manager is responsible for managing the implementation of the SMP and monitoring and coordinating the collection of data. The Project Manager is responsible for technical quality control 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 timelines;
- 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 SMP monitoring activities; and
- Overall site health and safety plan compliance.

2.2 QUALITY ASSURANCE RESPONSIBILITIES

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

2.2.1 Quality Assurance (QA) Officer

The QA Officer, Katherine Miller, 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;
- 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, Oscar Cervantes and Kirkland Boadwell, 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 SMP 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 staff 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 quality control 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 SMP and in compliance with the Field Sampling Plan (FSP) provided in the NYSDEC-approved Remedial Investigation Work Plan (RIWP) and QAPP.
- Immediately report any accidents and/or unsafe conditions to the Site Health & Safety Officer and take reasonable precautions to prevent injury.

3. Sampling Procedures

The FSP in the NYSDEC-approved RIWP provides the SOPs for sampling required by the SMP. Sampling will be conducted in general accordance with the New York State Department of Conservation (NYSDEC) Technical Guidance for Site Investigation and Remediation (DER-10)..

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 U.S. EPA, "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 in the NYSDEC-approved RIWP for the sample labeling procedures.

3.3 DECONTAMINATION PROCEDURES

Each soil sample will be collected with dedicated sampling equipment. Refer to the FSP in the NYSDEC-approved RIWP for the decontamination procedures.

3.4 FIELD QC SAMPLE COLLECTION

3.4.1 Field Duplicate Sample Collection

3.4.1.1 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.

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
- 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
- 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 (6) 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 Construction Health and Safety Plan (CHASP). On-site air monitoring for health and safety purposes may be accomplished using a vapor detection device, such as a photoionization 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.

6.2 LABORATORY ANALYTICAL PROCEDURES

Laboratory analyses will be based on the U.S. EPA 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 groundwater samples are listed in the SMP. 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 (QC) 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 quality control checks that will be employed for field and laboratory measurements.

7.1 FIELD QUALITY CONTROL

7.1.1 Field Blanks

Internal quality control 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 MS/MSD using the following equation.

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

If the quality control 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 (LCS) Analyses

The laboratory will perform LCS analyses prepared from Standard Reference Materials (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 semi-volatile organics 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 quality control (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 SMP 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 relative percent difference (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 reporting limit (RL).

8.1.3 Laboratory Precision Sample Objectives

Laboratory precision will be assessed through the analysis of laboratory control and laboratory control duplicate samples (LCS/LCSD) and matrix spike and matrix spike duplicate (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 reporting limit (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 (1) 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 reporting limits (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 Standard Reference Materials (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 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 (1) equipment rinse blank will be collected per day per matrix.

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.

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 (1) 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 (1) 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 (1) matrix spike/matrix spike duplicate (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

Quality control 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 Analytical Services Protocol (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
- 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
- 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
- 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
- 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
- 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
- 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.

In addition to regular maintenance, the field personnel will be responsible for decontaminating 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.

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 relative percent difference (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:

$$\text{Completeness} = \frac{\text{Valid (usable) Data Obtained}}{\text{Total Data Planned}} \times 100$$

12.2 LABORATORY DATA

Surrogate, internal standard and matrix spike recoveries will be used to evaluate data quality. The laboratory quality assurance/quality control program will include the following elements:

- Precision, in terms of relative percent difference (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 percent (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.

- Standard Reference Materials (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 (QA) 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
- 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.

5. United States Environmental Protection Agency. U.S. EPA National Functional Guidelines for Organic Data Review. U.S. EPA 540/R-2017-002.

6. United States Environmental Protection Agency. U.S. EPA National Functional Guidelines for Organic Data Review. U.S. EPA 540/R-2017-001.

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. Remedial Investigation Work Plan, March 2022, prepared by Haley & Aldrich.

TABLES

TABLE IV
ANALYTICAL METHODS AND QUALITY ASSURANCE SUMMARY TABLE
2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

Matrix Type	Field Parameters	Laboratory Parameters	Analytical Methods	Sample Preservation	Sample Container Volume and Type	Sample Hold Time	Field Duplicate Samples	Equipment Blank Samples	Trip Blank Samples	MS/MSD Samples
Groundwater	Temperature, Turbidity, pH, ORP, Conductivity, Dissolved Oxygen	Part 375 and TCL VOCs	EPA 8260C	Cool to 4°C; HCl to pH <2; no headspace	Three 40-mL VOC vials with Teflon® - lined cap	Analyze within 14 days of collection	1 per 20 samples (minimum 1)	1 per 20 samples (minimum 1)1	1 per Shipment of VOC samples	1 per 20 samples

Notes:
ORP - Oxidation-Reduction Potential
VOCs - Volatile Organic Compounds
HCl - Hydrochloric Acid

FIGURES

LEGEND

- MONITORING WELL
- UNDERGROUND COMMUTER RAIL LINE
- SITE BOUNDARY

NOTES

1. ALL LOCATIONS AND DIMENSIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: NEARMAP, 12 AUGUST 2021

N

0 30 60

SCALE IN FEET

HALEY ALDRICH

2864 ATLANTIC AVENUE REDEVELOPMENT SITE
2864 ATLANTIC AVENUE
BROOKLYN, NEW YORK

POST-REMEDIAL GROUNDWATER MONITORING WELL LOCATIONS

SEPTEMBER 2023

FIGURE 1

GIS: \\haleyaldrich.com\share\CF\Projects\0205126\GIS\Maps\2023_07\205126_000_0008_GW_MONITORING_WELL_LOCATIONS.mxd - dverier - 8/2/2023 11:11:40 AM

APPENDIX E
Site Management Forms

Summary of Green Remediation Metrics for Site Management

Site Name: _____ Site Code: _____
Address: _____ City: _____
State: _____ Zip Code: _____ County: _____

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

Current Reporting Period
Reporting Period From: _____ To: _____

Contact Information
Preparer's Name: _____ Phone No.: _____
Preparer's Affiliation: _____

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

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

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

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

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

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

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

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

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

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

	Current Reporting Period (gallons)	**Total to Date (gallons)**
Total quantity of water used on-site		
Of that total amount, provide quantity:		
Public potable water supply usage		
Surface water usage		
On-site groundwater usage		
Collected or diverted storm water usage		

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

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

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

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

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

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

Synoptic Water Level Measurement Log

PROJECT	
LOCATION	
CLIENT	
H&A FILE NO.	
PROJECT MANAGER	
FIELD REP.	
GAUGING DATE	
WEATHER	

MONITORING WELL ID	TIME	DEPTH TO WATER (FT BELOW TOC)	TOP OF CASING (FT)	GROUNDWATER ELEVATION (FT)

Comments:

1. Monitoring wells "X" through "X" were surveyed by "Insert Name of Surveyor" on "Day Month Year"
2. Wells were gauged on "Day Month Year"
3. Elevation refers to the North American Vertical Datum of 1988 (NAVD88).
4. All dimensions are in US survey feet.

LOW-FLOW GROUNDWATER SAMPLING RECORD

PROJECT		**H&A FILE NO.**	
LOCATION		**PROJECT MGR.**	
CLIENT		**FIELD REP**	
CONTRACTOR		**DATE**	

GROUNDWATER SAMPLING INFORMATION

Well ID:		**Well Volume:**		**Start Time:**	
Well Depth:		**Equipment:**		**Sample Time:**	
Depth to Water:					

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 (<5 NTU)	Depth to Water (ft)

ENGINEERING CONTROL INSPECTION FORM

2864 Atlantic Avenue

Brooklyn, NY

Passive Sub-Slab Depressurization System Component	Condition	No	Yes	Describe Deficiency	Any Corrective Action Performed? If so, describe
Vapor Barrier	Holes, cracks, or other physical deficiencies? (only applicable if asphalt/foundation above is damaged)				
Passive Sub-Slab Depressurization System	Holes, cracks, or other physical deficiencies?				
	Blockages in SSDS piping?				
	Monitoring Points Damaged?				

Name of Inspector

Signature of Inspector

Date of Inspection

NEW YORK STATE
DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Request to Import/Reuse Fill or Soil

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

SECTION 1 – SITE BACKGROUND

The allowable site use is: Choose an item

Have Ecological Resources been identified? Choose an item

Is this soil originating from the site? Choose an item

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

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

SECTION 2 – MATERIAL OTHER THAN SOIL

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

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

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

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

SECTION 3 - SAMPLING

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

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

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

SECTION 3 CONT'D - SAMPLING

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

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

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

SECTION 4 – SOURCE OF FILL

Name of person providing fill and relationship to the source:

Location where fill was obtained:

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

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

Provide a list of supporting documentation included with this request:

The information provided on this form is accurate and complete.

_____ _____

Signature Date

_____

Print Name

_____

Firm

Revised April 2023

APPENDIX F
Monitoring Well Boring and Construction Logs

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. MW01
Boring No.

PROJECT	2864 Atlantic Ave	**H&A FILE NO.**	205126
LOCATION	2864 Atlantic Ave, Brooklyn, NY	**PROJECT MGR.**	M.Levy
CLIENT	The Jay Group	**FIELD REP.**	N. Manzione
CONTRACTOR	Eastern Environmental Solutions	**DATE INSTALLED**	8/8/2023
DRILLER	N.Turro	**WATER LEVEL**	23.37

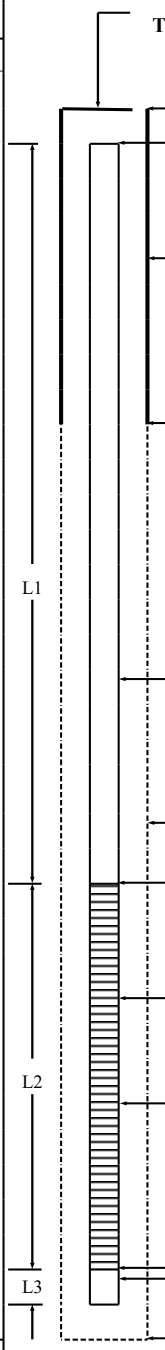
Ground El. 9.5 ft
El. Datum

Location See Plan

☑ **Guard Pipe**
☐ **Roadway Box**

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
0.0	0.0
	Soil Cuttings
	Bentonite Seal
	Filter Sand
(Bottom of Exploration)	

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock: Pent.bolt **9/16" hex.**
Padlock key no._ N/A

Height/Depth of top of guard pipe/roadway box above/below ground surface 0.0 ft

Height/Depth of top of riser pipe above/below ground surface 0.5 ft

Type of protective casing: Guard Pipe
Length 1.0 ft
Inside Diameter 4.0 in

Depth of bottom of guard pipe/roadway box 1.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	0.6
Soil Cuttings	17.0	16.4
Bentonite Seal	18.0	2.0
#2 Filter Sand	20.0	9.4

Type of riser pipe: Solid PVC
Inside diameter of riser pipe 2.0 in
Type of backfill around riser Soil Cuttings

Diameter of borehole 4.0 in

Depth to top of well screen 19.39 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 #2 Filter Sand

Depth of bottom of well screen 29.4 ft

Bottom of Silt trap N/A ft

Depth of bottom of borehole 29.39 ft

19.39 ft	+	10 ft	+	0 ft	=	29.39 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS:

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. MW02
Boring No.

PROJECT	2864 Atlantic Ave	**H&A FILE NO.**	205126
LOCATION	2864 Atlantic Ave, Brooklyn, NY	**PROJECT MGR.**	M.Levy
CLIENT	The Jay Group	**FIELD REP.**	N. Manzione
CONTRACTOR	Eastern Environmental Solutions	**DATE INSTALLED**	8/7/2023
DRILLER	N. Turro	**WATER LEVEL**	23.50 ft

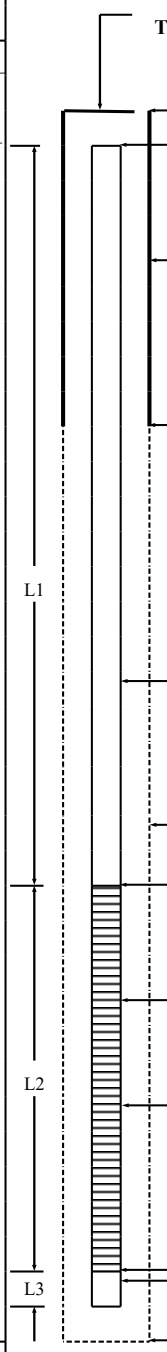
Ground El. 9.5 ft
El. Datum

Location See Plan

☑ **Guard Pipe**
☐ **Roadway Box**

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
0.0	0.0
Brown Medium SAND	
	Soil Cuttings
	Bentonite Seal
	Filter Sand
(Bottom of Exploration)	

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock: Pent.bolt **9/16" hex.**
Padlock key no._ N/A

Height/Depth of top of guard pipe/roadway box above/below ground surface 0.0 ft

Height/Depth of top of riser pipe above/below ground surface 0.5 ft

Type of protective casing: Guard Pipe
Length 1.0 ft
Inside Diameter 4.0 in

Depth of bottom of guard pipe/roadway box 1.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Soil Cuttings	19.0	10.0
Bentonite Seal	21.0	2.0
#2 Filter Sand	22.0	10.0

Type of riser pipe: Solid PVC
Inside diameter of riser pipe 2.0 in
Type of backfill around riser Non Impacted Soil Cuttings

Diameter of borehole 4.0 in

Depth to top of well screen 21.0 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 #2 Filter Sand

Depth of bottom of well screen 30.8 ft

Bottom of Silt trap N/A ft

Depth of bottom of borehole 31.0 ft

Riser Pay Length (L1)	+	Length of screen (L2)	+	Length of silt trap (L3)	=	Pay length
21 ft	+	10 ft	+	0 ft	=	31 ft

COMMENTS:

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. MW03
Boring No.

PROJECT	2864 Atlantic Ave	**H&A FILE NO.**	205126
LOCATION	2864 Atlantic Ave, Brooklyn, NY	**PROJECT MGR.**	M.Levy
CLIENT	The Jay Group	**FIELD REP.**	N. Manzione
CONTRACTOR	Eastern Environmental Solutions	**DATE INSTALLED**	8/8/2023
DRILLER	N. Turro	**WATER LEVEL**	23.65

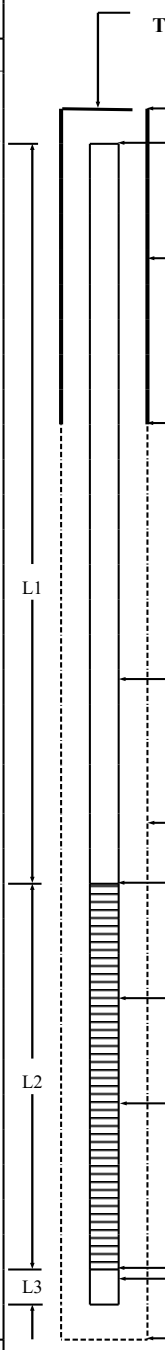
Ground El. 9.5 ft
El. Datum

Location See Plan

☑ **Guard Pipe**
☐ **Roadway Box**

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
0.0	0.0
Brown, medium SAND	
	Soil Cuttings
	Bentonite Seal
	Filter Sand
(Bottom of Exploration)	

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock: Pent.bolt **9/16" hex.**
Padlock key no._ N/A

Height/Depth of top of guard pipe/roadway box above/below ground surface 0.0 ft

Height/Depth of top of riser pipe above/below ground surface 0.5 ft

Type of protective casing: Guard Pipe
Length 1.0 ft
Inside Diameter 4.0 in

Depth of bottom of guard pipe/roadway box 1.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Soil Cuttings	19.0	18.0
Bentonite Seal	20.0	2.0
#2 Filter Sand	22.0	10.3

Type of riser pipe: Solid PVC
Inside diameter of riser pipe 2.0 in
Type of backfill around riser Soil Cuttings

Diameter of borehole 4.0 in

Depth to top of well screen 22.3 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 #2 Filter Sand

Depth of bottom of well screen 32.3 ft

Bottom of Silt trap N/A ft

Depth of bottom of borehole 32.3 ft

22.3 ft	+	10 ft	+	0 ft	=	32.3 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS:

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. MW04
Boring No.

PROJECT	2864 Atlantic Ave	**H&A FILE NO.**	205126
LOCATION	2864 Atlantic Ave, Brooklyn, NY	**PROJECT MGR.**	M.Levy
CLIENT	The Jay Group	**FIELD REP.**	N. Manzione
CONTRACTOR	Eastern Environmental Solutions	**DATE INSTALLED**	8/7/2023
DRILLER	N. Turro	**WATER LEVEL**	23.41

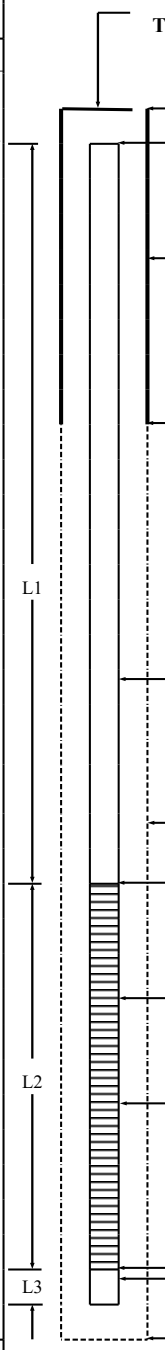
Ground El. 9.5 ft
El. Datum

Location See Plan

☑ **Guard Pipe**
☐ **Roadway Box**

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
0.0	0.0
Brown, Medium SAND	
Impacted soil detected at approx 15-20'	
Impacted soil stained black	
	Soil Cuttings
	Bentonite Seal
	Filter Sand
(Bottom of Exploration)	

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock: Pent.bolt **9/16" hex.**
Padlock key no._ N/A

Height/Depth of top of guard pipe/roadway box above/below ground surface 0.0 ft

Height/Depth of top of riser pipe above/below ground surface 0.5 ft

Type of protective casing: Guard Pipe
Length 1.0 ft
Inside Diameter 4.0 in

Depth of bottom of guard pipe/roadway box 1.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Soil Cuttings	18.2	10.0
Bentonite Seal	20.2	2.0
#2 Filter Sand	21.2	10.2

Type of riser pipe: Solid PVC
Inside diameter of riser pipe 2.0 in
Type of backfill around riser Soil Cuttings

Diameter of borehole 4.0 in

Depth to top of well screen 25.0 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 #2 Filter Sand

Depth of bottom of well screen 30.0 ft

Bottom of Silt trap N/A ft

Depth of bottom of borehole 30.2 ft

20.2 ft	+	10 ft	+	0 ft	=	30.2 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS:

OBSERVATION WELL INSTALLATION REPORT

HALEY ALDRICH

Well No. MW05
Boring No.

PROJECT	2864 Atlantic Ave	**H&A FILE NO.**	205126
LOCATION	2864 Atlantic Ave, Brooklyn, NY	**PROJECT MGR.**	M.Levy
CLIENT	The Jay Group	**FIELD REP.**	N. Manzione
CONTRACTOR	Eastern Environmental Solutions	**DATE INSTALLED**	8/8/2023
DRILLER	N.Turro	**WATER LEVEL**	22.82

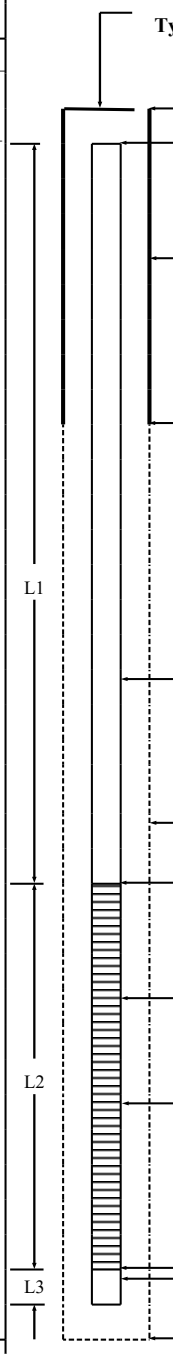
Ground El. 9.5 ft
El. Datum

Location See Plan

☑ **Guard Pipe**
☐ **Roadway Box**

SOIL/ROCK CONDITIONS	BOREHOLE BACKFILL
0.0	0.0
Brown, Medium SAND	
Impacts at approx 25-30 ft	
Impacted soil stained black	
	Soil Cuttings
	Bentonite Seal
	Filter Sand
(Bottom of Exploration)	

(Numbers refer to depth from ground surface in feet)



(Not to Scale)

Type of protective cover/lock: Pent.bolt **9/16" hex.**
Padlock key no._ N/A

Height/Depth of top of guard pipe/roadway box above/below ground surface 0.0 ft

Height/Depth of top of riser pipe above/below ground surface 0.5 ft

Type of protective casing: Guard Pipe
Length 1.0 ft
Inside Diameter 4.0 in

Depth of bottom of guard pipe/roadway box 1.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	1.0
Soil Cuttings	16.0	15.0
Bentonite Seal	17.0	2.0
#2 Filter Sand	19.0	10.5

Type of riser pipe: Solid PVC
Inside diameter of riser pipe 2.0 in
Type of backfill around riser Soil Cuttings

Diameter of borehole 4.0 in

Depth to top of well screen 20.0 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 #2 Filter Sand

Depth of bottom of well screen 30.0 ft

Bottom of Silt trap N/A ft

Depth of bottom of borehole 30.0 ft

19.95 ft	+	10 ft	+	0 ft	=	29.95 ft
Riser Pay Length (L1)		Length of screen (L2)		Length of silt trap (L3)		Pay length

COMMENTS:

APPENDIX G
Site Contact List

Company	Contact Name	Title	Contact Number	Contact Email
Haley & Aldrich	James Bellew	Principal	646-277-5686	jbellew@haleyaldrich.com
	Scott Underhill, P.E.	Remediation Engineer	518-396-7638	sunderhill@haleyaldrich.com
	Matthew Levy	Project Manager	646-893-4733	mlevy@haleyaldrich.com
	Philip DiNardo	Field Lead	646-568-9370	pdinardo@haleyaldrich.com
2864 Atlantic Realty LLC	Jacob Kohn	Member	718-963-0536	kohnjacob@gmail.com
Sive, Paget & Riesel PC	Christine Leas	Remedial Party's Attorney	646-378-7267	cleas@sprlaw.com
N/A	Jenny Adamez-Cruz 259 Barbey Street	Adjacent Property Owner	Unknown	Unknown
N/A	Antonia Cardona 218 Jerome Street	Adjacent Property Owner	Unknown	Unknown
Empire State Dairy LLC	Abraham Hoffman	Adjacent Property Owner	Unknown	hello@bushburg.com
Badawy & Sons International Corp.	Mohamed Badawy 2890 Atlantic Avenue	Adjacent Property Owner	Unknown	Unknown
2863 Realty LLC	Nick Thomopoulos 2863 Atlantic Avenue	Adjacent Property Owner	Unknown	Unknown
2869 Atlantic LLC	Victor Carella 2869 Atlantic Avenue	Adjacent Property Owner	Unknown	Unknown
2873 Realty LLC	Dovie Sperlin 2873 Atlantic Avenue	Adjacent Property Owner	Unknown	Unknown
Saleta-Stevenson Enterprises, Inc.	Carlos Stevenson 2875 Atlantic Avenue	Adjacent Property Owner	Unknown	Unknown
Over the Pond LLC	Gershon Eichorn 2883 Atlantic Avenue	Adjacent Property Owner	Unknown	Unknown

APPENDIX H

Responsibilities of the Remedial Party

Responsibilities

The responsibilities for implementing the Site Management Plan ("SMP") for the 2864 Atlantic Avenue Redevelopment site (the "site"), number C224349, are divided between the site owner(s) and a Remedial Party, as defined below. The term Remedial Party ("RP") refers to any of the following: certificate of completion holder, volunteer, applicant, responsible party, and, in the event the New York State Department of Environmental Conservation ("NYSDEC") is carrying out remediation or site management, the NYSDEC and/or an agent acting on its behalf. Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the owner and Remedial Party is currently listed as:

2864 Atlantic Realty LLC
40 Oser Avenue, Suite 4
Hauppauge, NY 11788

Nothing on this page shall supersede the provisions of an Environmental Easement, Consent Order, Consent Decree, agreement, or other legally binding document that affects rights and obligations relating to the site.

Site Owner's Responsibilities:

1) The owner shall follow the provisions of the SMP as they relate to future construction and excavation at the site.

2) In accordance with a periodic time frame determined by the NYSDEC, the owner shall periodically certify, in writing, that all Institutional Controls set forth in an Environmental Easement remain in place and continue to be complied with. The owner shall provide a written certification to the RP, upon the RP's request, in order to allow the RP to include the certification in the site's Periodic Review Report (PRR) certification to the NYSDEC.

3) In the event the site is delisted, the owner remains bound by the Environmental Easement and shall submit, upon request by the NYSDEC, a written certification that the Environmental Easement is still in place and has been complied with.

4) The owner shall grant access to the site to the RP and the NYSDEC and its agents for the purposes of performing activities required under the SMP and assuring compliance with the SMP.

5) The owner is responsible for assuring the security of the remedial components located on its property to the best of its ability. If damage to the remedial components or vandalism is evident, the owner shall notify the site's RP and the NYSDEC in accordance with the timeframes indicated in Section 1.3 - Notifications.

6) If some action or inaction by the owner adversely impacts the site, the owner must notify the site's RP and the NYSDEC in accordance with the time frame indicated in Section 1.3 - Notifications and coordinate the performance of necessary corrective actions with the RP.

7) The owner must notify the RP and the NYSDEC of any change in ownership of the site property (identifying the tax map numbers in any correspondence) and provide contact information for the new owner of the site property. 6 NYCRR Part contains notification requirements applicable to any construction or activity changes and changes in ownership. Among the notification requirements is the following: Sixty days prior written notification must be made to the NYSDEC. Notification is to be submitted to the NYSDEC Division of Environmental Remediation's Site Control Section. Notification requirements for a change in use are detailed in Section 1.3 of the SMP. A change of use includes, but is not limited to, any activity that may increase direct human or environmental exposure (e.g., day care, school or park). A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.

8) Until such time as the NYSDEC deems the vapor mitigation system unnecessary, the owner shall operate the system, pay for the utilities for the system's operation, and report any maintenance issues to the RP and the NYSDEC.

9) In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

Remedial Party Responsibilities

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the site.

2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, periodic review reports and certifications, electronic data deliverables, corrective action work plans and reports, and updated SMPs.

3) Before accessing the site property to undertake a specific activity, the RP shall provide the owner advance notification that shall include an explanation of the work expected to be completed. The RP shall provide to (i) the owner, upon the owner's request, (ii) the NYSDEC, and (iii) other entities, if required by the SMP, a copy of any data generated during the site visit and/or any final report produced.

4) If the NYSDEC determines that an update of the SMP is necessary, the RP shall update the SMP and obtain final approval from the NYSDEC. Within 5 business days after NYSDEC approval, the RP shall submit a copy of the approved SMP to the owner(s).

5) The RP shall notify the NYSDEC and the owner of any changes in RP ownership and/or control and of any changes in the party/entity responsible for the operation, maintenance, and monitoring of and reporting with respect to any remedial system (Engineering Controls). The RP shall provide contact information for the new party/entity. Such activity constitutes a Change of Use pursuant to 375-1.11(d) and requires 60-days prior notice to the NYSDEC. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html .

6) The RP shall notify the NYSDEC of any damage to or modification of the systems as required under Section 1.3 - Notifications of the SMP.

7) The RP is responsible for the proper maintenance of any installed vapor intrusion mitigation systems associated with the site, as required in Section 5 of the SMP.

8) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

9) Any change in use, change in ownership, change in site classification (*e.g.*, delisting), reduction or expansion of remediation, and other significant changes related to the site may result in a change in responsibilities and, therefore, necessitate an update to the SMP and/or updated legal documents. The RP shall contact the NYSDEC project manager to discuss the need to update such documents.

Change in RP ownership and/or control and/or site ownership does not affect the RP's obligations with respect to the site unless a legally binding document executed by the NYSDEC releases the RP of its obligations.

Future site owners and RPs and their successors and assigns are required to carry out the activities set forth above.

APPENDIX I

HASP

HALEY & ALDRICH, INC.
SITE-SPECIFIC SAFETY PLAN

FOR

2864 Atlantic Ave

2864 Atlantic Ave, New York, NY 11207

Project/File No. 0205126

Gensuite EZ Scan®

BI - Developers

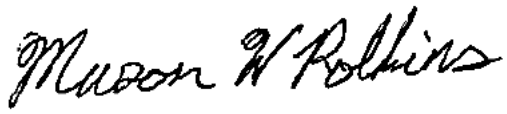
Prepared By: Matthew Forshay	**Date: 9/18/2023**
Approvals: The following signatures constitute approval of this Health & Safety Plan.	
	
Field Safety Manager: Mason Robbins	**Date: 9/18/2023**
	
Project Manager: Levy, Matthew	**Date: 9/18/2023**
HASP Valid Through: 12/31/2024	

Table of Contents

Page

STOP WORK AUTHORITY **I**

ISSUANCE AND COMPLIANCE **II**

EMERGENCY EVENT PROCEDURES **III**

PROJECT INFORMATION AND CONTACTS **IV**

DIRECTIONS TO THE NEAREST HOSPITAL **V**

DIRECTIONS TO THE NEAREST URGENT CARE **VI**

1. WORK SCOPE **7**

Project Task Breakdown 7
Subcontractor(s) Tasks 7

2. SITE OVERVIEW / DESCRIPTION **8**

Site Classification 8
Site Description 8
Background and Historic Site Usage 8
Site Status 8
Site Plan 8
Work Areas 8

3. HAZARD ASSESSMENT **10**

Site Chemical Hazards 10
Site Hazards Checklist 13
Weather 13
Biological 13
Location/Terrain 14
Miscellaneous 15
Task Hazard Summary 17
Task Physical Hazards Checklist 18
Summary of Physical Hazards & Controls 18

4. PROTECTIVE MEASURES **21**

Required Safety & Personal Protective Equipment 21

5. TRAINING REQUIREMENTS **21**

Site Specific Training Requirements 21
Task Specific Training Requirements 22

6. AIR MONITORING PLAN AND EQUIPMENT **23**

Air Monitoring/Screening Equipment Requirements 23
Monitoring Plans 23

7. DECONTAMINATION & DISPOSAL METHODS **24**

Personal Hygiene Safeguards 24
Decontamination Supplies 24

Location of Decontamination Station 24
Standard Personal Decontamination Procedures 25
Disposal Methods 26
Disposal of Single Use Personal Protective Equipment 26

8. SITE CONTROL 27

Communication 27
Visitors 27
Zoning 27

9. SITE SPECIFIC EMERGENCY RESPONSE PLAN 28

Pre-Emergency Planning 28
Onsite Emergency Response Equipment 28
EVACUATION ALARM 29
EVACUATION ROUTES 29
EVACUATION MUSTER POINT(S)/ SHELTER AREA(S) 29
EVACUTION RESPONSE DRILLS 29
Emergency Type 30
Notification 30
Response Action 30
Evacuation Plan/Route 30

10. HASP ACKNOWLEDGEMENT FORM 31

Attachments

Attachment A	HASP Amendment Form
Attachment B	Training Requirements
Attachment C	Roles and Responsibilities
Attachment D	Job Safety Analyses
Attachment E	Project Site Forms
Attachment F	Site-Specific Operating Procedures

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

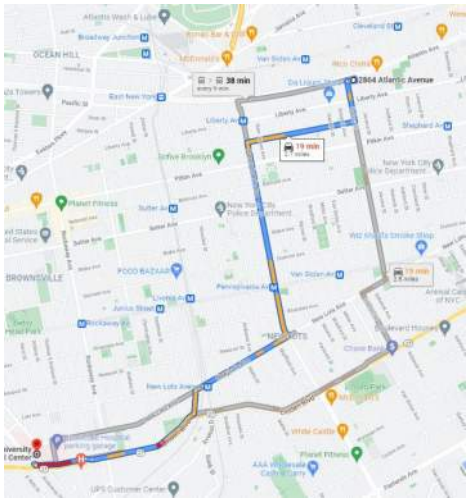
- **Implement corrective actions per the PM following root cause analysis.**
    - Complete Lessons Learned form.

PROJECT INFORMATION AND CONTACTS	
Project Name: 2864 Atlantic Ave	**Haley & Aldrich File No.:** 0205126
Location: 2864 Atlantic Ave, Brooklyn, New York	
Client/Site Contact: Phone Number:	Jacob Kohn 917.846.1115
Haley & Aldrich Field Representative: Phone Number: Emergency Phone Number:	Sotomayor, Sebastian 646.277.5685 646.532.9079
Haley & Aldrich Project Manager: Phone Number: Emergency Phone Number:	Levy, Matthew 646.893.4733 631.943.4763
Field Safety Manager: Phone Number: Emergency Phone Number:	Ferguson, Brian 617.886.7439 617.908.2761
Subcontractor Project Manager: Phone Number:	Enter Name Enter Phone Number
Nearest Hospital: Address: (see map on next page) Phone Number:	The Brookdale University Hospital and Medical Center 1 Brookdale Plaza, Brooklyn, NY 11201 718.240.5000
Nearest Occ. Health Clinic: http://www.talispoint.com/liberty/ext/ Address: (see map on next page) Phone Number:	Four Seasons Nursing and Rehab Center 1555 Rockaway Pkwy, New York, NY 11236 718.927.6300
Liberty Mutual Claim Policy	**WC6Z11254100033**
WorkCare Injury and Illness HOTLINE	**1-888-449-7787**
Emergency Response Number:	911
Other Local Emergency Response Number:	N/A
Other Ambulance, Fire, Police, or Environmental Emergency Resources:	911

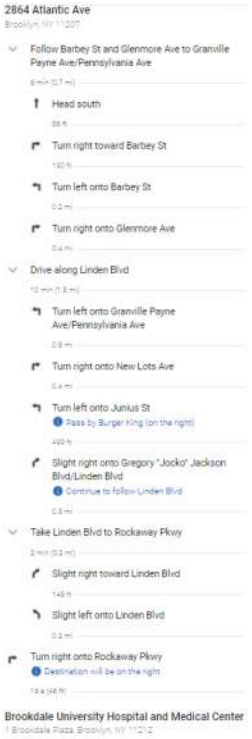
DIRECTIONS TO THE NEAREST HOSPITAL

Liberty Mutual Medical Location Directory

The Brookdale University Hospital and Medical Center:



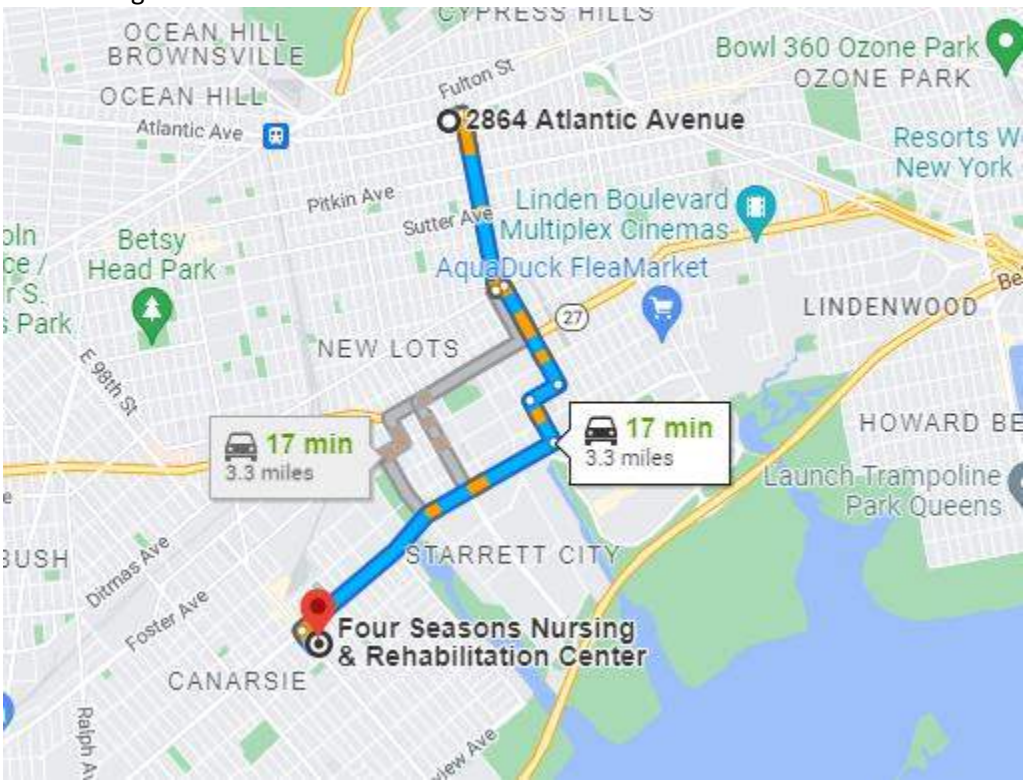
Directions to the Nearest Hospital:



DIRECTIONS TO THE NEAREST URGENT CARE

[Liberty Mutual Medical Location Directory]

Four Seasons Nursing & Rehabilitation Center:



Directions to the Nearest Occupational Clinic:

2864 Atlantic Ave
Brooklyn, NY 11207

- Head east on Atlantic Ave toward Jerome St
  27 sec (367 ft)
- Turn right onto Warwick St
  6 min (0.8 mi)
- Turn left onto New Lots Ave
  18 sec (194 ft)
- Continue on Ashford St to Flatlands Ave
  5 min (0.9 mi)
- Follow Flatlands Ave to Rockaway Pkwy
  8 min (1.5 mi)

Four Seasons Nursing & Rehabilitation Center
1555 Rockaway Pkwy, Brooklyn, NY 11236

Paste map and directions showing route to nearest hospital here.

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:

Remedial Oversight, Soil & Soil Vapor Sampling (if required), In-situ Chemical Oxidation Reagent Injection Oversight, and Permanent Groundwater Monitoring Wells Installation Oversight.

Project Task Breakdown

Task No.	Task Description	Employee(s) Assigned	Work Date(s) or Duration
1.	Groundwater Sampling	Sebastian Sotomayor	12 months

Subcontractor(s) Tasks

Firm Name	Work Activity	Work Date(s) or Duration
N/A	Enter task description.	Enter dates/duration.

Projected Start Date: 10/1/2023

Projected Completion Date: 12/31/2024

2. SITE OVERVIEW / DESCRIPTION

Site Classification

Commercial

Site Description

The Site, identified as Block 3965, Lot 11 on the New York City Tax Map, is an irregular-shaped vacant lot totaling approximately 18,111-square-feet in size (approximately 0.415 acres). The Site was most recently a gasoline filling station with a one-story store structure, a one-story storage building, an overhead canopy, and six dispenser islands. The active retail petroleum operations were terminated in February 2022. 2864 Atlantic Realty LLC acquired ownership of the Site in March 2022. Demolition activities of the former gasoline filling station were completed in May 2022.

Background and Historic Site Usage

The Site was partially developed in the late 1800s with two stores and one residential building. By the early 1950s, the Site was partially redeveloped with a garage and two gasoline tanks. By 1965, the entire Site was occupied by a filling station that was developed with an overhead canopy and a one-story office building. The Site remained unchanged since approximately 1965 and actively operated as a filling station until February 2022.

Site Status

Indicate current activity status and describe operations at the site:

Active

The Site has active construction for the proposed development.

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:

Entire site

Site Plan

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
1,2,4-Trimethylbenzene	**Groundwater**	**2,300**	**ug/L**
1,3,5-Trimethylbenzene	**Groundwater**	**460**	**ug/L**
2-Phenylbutane	**Groundwater**	**21**	**ug/L**
Acetone	**Groundwater**	**74**	**ug/L**
Chloroform	**Groundwater**	**12**	**ug/L**
Ethylbenzene	**Groundwater**	**640**	**ug/L**
Isopropylbenzene	**Groundwater**	**130**	**ug/L**
Xylenes	**Groundwater**	**1,200**	**ug/L**
n-Butylbenzene	**Groundwater**	**43**	**ug/L**
n-Propylbenzene	**Groundwater**	**390**	**ug/L**
o-Xylene	**Groundwater**	**28**	**ug/L**
Naphthalene	**Groundwater**	**230**	**ug/L**
Manganese, Dissolved	**Groundwater**	**2,450**	**ug/L**
Sodium, Dissolved	**Groundwater**	**153,000**	**ug/L**
Iron, Total	**Groundwater**	**6,730**	**ug/L**
Manganese, Total	**Groundwater**	**2,670**	**ug/L**
Sodium, Total	**Groundwater**	**151,000**	**ug/L**

Choose an item.	Select Media.		Select Units
Choose an item.	Select Media.		Select Units
Choose an item.	Select Media.		Select Units
Choose an item.	Select Media.		Select Units

Xylenes: are colorless liquids with a faint, sweet odor. There are three forms of xylene (meta-, ortho-, and para-), which are referred to as isomers. They are chemically classified as hydrocarbons, meaning they contain hydrogen and carbon atoms. These are chemicals of serious flammability and will easily ignite with heat, sparks or flames. Their flash point range is between 85-115 degrees F. The PEL is 10 ppm averaged over an 8 hour shift.

Typically, these are solvents in making paint, adhesives, and other chemicals. Their odor threshold varies greatly, and this should not be the sole indicator in exposures. Their vapors are heavier than air, but less dense than water, therefore they float. Can be inhaled or absorbed through the skin. Inhalation can irritate throat and nose and cause coughing, headache or dizziness. Absorption can cause skin rash, dryness or redness. Repeated exposures may affect concentration, memory, vision, and muscle coordination.

BTEX/VOCs: BTEX is an acronym for benzene, toluene, ethylbenzene and xylenes. These compounds are VOCs, are common in petroleum-related products (e.g., oil, gasoline, coal-tar DNAPL, etc.), and frequently co-occur at hazardous waste sites. Benzene, toluene, ethylbenzene, and xylenes have acute and chronic harmful effects on the central nervous system. Benzene is classified as a carcinogen. Short-term health effects of low-level BTEX exposure include drowsiness, dizziness, accelerated heart rate, headaches, tremors, confusion, and unconsciousness.

1,2,4-Trimethylbenzene: is a colorless liquid chemical with a strong, pleasant scent. 1,2,4-trimethylbenzene is a major part of what is known in the petroleum industry as the 'C9 fraction.' Oil refineries produce large amounts of C9 fraction each year for use as a gasoline additive.

Naphthalene: is a colorless or white/brown solid in flake or cake form, with mothball odor. Commonly found in coal tar, gasoline, or diesel fuels. Used to make mothballs and lubricants. This is a carcinogen and should be handled with extreme caution. Is a combustible solid and when heated is a dangerous fire hazard. Finely dispersed particles can form explosive mixtures. Absorption will cause irritation or burning to skin or eyes. Inhalation will cause irritation to nose and throat. High exposures will lead to headache, fatigue, tremors, and nausea. May also cause damage to liver and kidneys. The PEL 10 ppm averaged over an 8 hour shift.

VOCs: include all organic compounds (substances made up of predominantly carbon and hydrogen) with boiling temperatures in the range of 50-260 degrees C, excluding pesticides. This means that they are likely to be present as a vapor or gas in normal ambient temperatures. Substances which are included in the VOC category include aliphatic hydrocarbons (such as hexane), aldehydes, aromatic hydrocarbons (such as benzene, toluene, and the xylenes or BTEX), and oxygenated compounds (such as acetone and similar ketones). The term VOC often is used in a legal or regulatory context and in such cases the precise definition is a matter of law.

VOCs are released from oil and gasoline refining, storage and combustion as well as from a wide range of industrial processes. Processes involving fuels, solvents, paints or the use of chemicals are the most significant sources. VOCs may also be emitted from cleaning products, degreasing products, fabrics, carpets, plastic products, glues, printed material, varnishes, wax, disinfectants, and cosmetics.

Typically, VOCs are present in gas or vapor and will enter the body by breathing contaminated air. Higher concentrations of VOCs may occur in areas of poor ventilation.

Enter any content that you want to repeat, including other content controls. You can also insert this control around table rows in order to repeat parts of a table.

Site Hazards Checklist			
Weather			
Hot Temperatures	Cold Temperatures	Select Hazard	Select Hazard

Hot Temperatures

Heat stress may occur at any time work is being performed at elevated ambient temperatures. Because heat stress is one of the most common and potentially serious illnesses associated with outdoor work during hot seasons, regular monitoring and other preventative measures are vital. Site workers must learn to recognize and treat the various forms of heat stress. The best approach is preventative heat stress management.

H&A employees and their subcontractors should be aware of potential health effects and/or physical hazards of working when there are hot temperatures or a high heat index. Refer OP1015-Heat Stress for a discussion on hot weather hazards.

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.

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	SIMOPS	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.

SIMOPS

SIMOPS are described as the potential class of activities which could bring about an undesired event or set of circumstances, e.g., safety, environment, damage to assets, schedule, commercial, financial, etc. SIMOPS are defined as performing two or more operations concurrently.

SIMOPS should be identified at an early stage before operations commence to understand issues such as schedule and physical clashes, maintenance activities, failure impacts, interferences between vessels, contracts and third part interfaces and environmental impacts.

Coordinate project with site activities. Identify and understand the hazards associated with the host and client's activities. Integrate site emergency response protocols where appropriate and communicate to all project staff. Integrate site communication protocols and communicate to all project staff.

Miscellaneous			
Extended Shift	Choose an item.	Choose an item.	Choose an item.

Extended Shift

An extended shift can include extending a workday beyond eight hours. Extended or unusual work shifts may be more stressful physically, mentally, and emotionally. Non-traditional shifts and extended work hours may disrupt the body's regular schedule, leading to increased fatigue, stress, and lack of concentration. This leads to an increased risk of operator error, injuries and/or accidents. The degree to which an individual is exposed to fatigue risk factors depends upon the work schedule. As both the duration of the workday and the number of days worked increase so does the fatigue risk factors. Staff Managers need to be aware of the fatigue risk factors and ensure projects are structured to mitigate these factors. Staff Members also have a responsibility to manage the personal fatigue risk factors that they can control outside of work (e.g, duration and quality of sleep, diet, drugs, and alcohol)

Fatigue is a message to the body to rest and can be eliminated with proper rest. However, if rest is not possible, fatigue can increase and becomes distressing and eventually debilitating. Fatigue symptoms, both mental and physical, vary and depend on the person and degree of overexertion. Examples include: weariness, sleepiness, irritability, reduced alertness, lack of memory, concentration and motivation, increased susceptibility to illness, depression, headache, loss of appetite, and digestive problems.

When possible, managers should limit use of extended shifts and increase the number of days worked. Working shifts longer than 8 hours generally result in reduced productivity and alertness. Additional

breaks and meals should be provided when working extended shift periods. Tasks requiring heavy physical labor or intense concentration should be performed at the beginning of the shift if possible. This is an important consideration for pre-emergency planning.

Make efforts, when feasible, to ensure that unavoidable extended work shifts and shift changes allow affected employees time for adequate rest and recovery. Project Managers need to plan to have an adequate number of personnel available to enable workers to take breaks, eat meals, relax, and sleep.

Plan for regular and frequent breaks throughout the work shift. If at remote sites, ensure if possible, that there is a quiet, secluded area designated for rest and recuperation. In addition to formal breaks such as lunch or dinner, encourage use of micro breaks to change positions, move about, and shift concentration. Personnel should look to obtain an adequate quantity and quality of sleep.

Task Hazard Summary

Task 1– Groundwater 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 Physical Hazards Checklist					
Potential Task Hazards	**Task 1 Groundwater Sampling**	Task Name	Task Name	Task Name	
Ergonomics	☒	☐	☐	☐	☐
Hand/Power Tools	☒	☐	☐	☐	☐
Slippery Surfaces	☒	☐	☐	☐	☐
Congested Area	☒	☐	☐	☐	☐
Heavy Equipment	☒	☐	☐	☐	☐
Work Overhead	☒	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐
Other: Specify	☐	☐	☐	☐	☐

Summary of Physical Hazards & Controls

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
-
-

Hand and Power Tools

Hand and power tools can expose staff to a wide range of hazards depending upon the tool used. Hazards can include but are not limited to: falling, flying, abrasive, and splashing objects, or harmful dusts, fumes, mists, vapors, or gases.

Serious accidents often occur before steps are taken to evaluate and avoid or eliminate tool-related hazards. Staff must recognize the hazards associated with the different types of tools and the safety precautions necessary to prevent those hazards.

See OP 1026 Hand and Power Tools for more information.

Controls

- Keep all tools in good condition with regular maintenance.
- Use the right tool for the job. Do not use a tool for a task which it was not designed for.
- Examine each tool for damage before use and do not use damaged tools.
- For tools that are damaged or defective, red tag the tool and take out of service.
- Operate tools per the manufacturers' instructions.
- Use the appropriate personal protective equipment.
- All electrically powered tools will be connected through a ground fault circuit interrupter (GFCI).
- All personnel must be trained on the use of the tool they are utilizing.
-
-

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.

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.

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.
-

Overhead Work

Work overhead can potentially expose staff to equipment, tools, and/or materials should they be dropped or left unsecured. This creates a significant hazard that can result in an injury, fatality or damage equipment and vehicles.

Staff shall not perform overhead work under any circumstances in places where people or vehicles are present or where they may enter during the work. This is to prevent the possibility of an object falling and coming into contact with a person or vehicle.

Controls

- Barricade and mark areas affected by overhead work to keep people and vehicles out of the work zone and warn them of the hazard.
- Do not leave tools, materials, and equipment unattended on ladders, scaffolds, or platforms when there is a chance that the items may fall or be dislodged.
- Boundaries of the work zone shall be a safe distance from overhead work in the event material, tools, or equipment should fall.
-

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**			
	Groundwater Sampling	Enter task description.	Task Name	Enter task description.
Hard hat	☒	☐	☐	☐
Safety Glasses	☒	☐	☐	☐
Class 2 Safety Vest	☒	☐	☐	☐
Safety Toed Shoes	☒	☐	☐	☐
Nitrile Gloves	☒	☐	☐	☐
Cut Gloves	☒	☐	☐	☐
Required Safety Equipment				
☐	☐	☐	☐	☐

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**			
	Groundwater Sampling	Enter task description.	Task Name	Task Name
DOT HAZMAT Transporter Training	☒	☐	☐	☐

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? Yes

Is perimeter monitoring required for community protection? No

Air monitoring plan not applicable No

Air Monitoring/Screening Equipment Requirements

Photo-Ionization Detector (PID) 10.6eV

The required equipment listed above must be on site. Work shall not commence unless the equipment is present and in working order.

Monitoring Plans

Select Monitoring Plan

Parameter/ Contaminant	Equipment	Action Level	Response Activity
VOCs	PID 10.6 eV	< 5 ppm	Continue work and monitoring.
		>5 ppm for 5 minutes	Clear Instrument and Re-Monitor the Area. Implement PPE upgrades
		>5 ppm for >5 minutes	Evacuate the area and call the FSM and/or PM for further guidance. Implement engineering controls.

Zone Location and Monitoring Interval
Breathing zone and edge of Exclusion Zone.

***If chemical does not have an action level use TLV or REL, whichever is lowest, to be used as an action level. If TLV or REL are the same as PEL, cut the PEL in half for an action level.**

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

To be communicated at Site kick-off meeting

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.

Standard Disposal Methods for Contaminated Materials

- Excess sample solids, decontamination materials, rags, brushes, poly-sheeting, etc. that are determined to be free of contamination through field screening can usually be disposed into client-approved, on-site trash receptacles.
- Uncontaminated wash water may be discarded onto the ground surface away from surface water bodies in areas where infiltration can occur.
- Contaminated materials must be segregated into liquids or solids and containerized separately for offsite disposal.

Any additional requirements that are designated by the workplan or by client specifications should be entered here.

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.

Sebastian Sotomayor 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:

Temporary Fencing
Cones
Barricades
Flagging Tape

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	ANSI	1 Kit	Staff member
Emergency PPE	**Specific Type**	**Quantity Stocked**	**Location Stored**
Gloves	Nitrile	1 Box	Staff member

EVACUATION ALARM
Will be communicated during the Onsite Kickoff Meeting
EVACUATION ROUTES
Will be given a map after site specific training
EVACUATION MUSTER POINT(S)/ SHELTER AREA(S)
Will be given a locations 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 Muster point to be communicated during site kick-off meeting		*SHELTER LOCATION* Shelter location to be communicated during site kick-off meeting	
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

2864 ATLANTIC AVE

KEY TASK ENTER TASK NUMBER.: ENTER TASK NAME.

Subtask Category	Potential Hazards	Controls
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.
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
PROJECT SITE FORMS

ATTACHMENT F
SITE-SPECIFIC OPERATING PROCEDURES