FORMER ANDOR MEDICAL SYSTEMS

26-22 4th Street
Queens County
ASTORIA, NEW YORK
Block 910, Lot 9

SITE MANAGEMENT PLAN

NYSDEC Site Number: C241234

Prepared for:

4th Street Developments LLC
143 Division Avenue
Brooklyn, NY 11211

Prepared by:

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Revisions to Final Approved Site Management Plan:

Revision No.	Date Submitted	Summary of Revision	NYSDEC Approval Date

CERTIFICATION STATEMENT

I, Ariel Czemerinski, certify that I am currently a NYS registered professional engineer or as in defined in 6 NYCRR Part 375] 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).

076508	10/20/2022	
NYS Professional Engineer #	Date	Signature

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LIST OF ACRONYMS

Acronym	Definition
AMC	AMC Engineering
AWQS	Ambient Water Quality Standards
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
BTEX	Benzene, Toluene, Ethylbenzene and Xylene
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulation
COC	Certificate of Completion
CQMP	Construction Quality Management Plan
DER	Division of Environmental Remediation
DUSR	Data Usability Statement Report
EBC	Environmental Business Consultants
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
EWP	Excavation Work Plan
FER	Final Engineering Report
HASP	Health and Safety Plan
HDPE	High Density Polyethylene
IC	Institutional Control
IRM	Interim Remedial Measure
NYC	New York City
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
PID	Photo-Ionization Detector
PRR	Periodic Review Report
PS	Public School
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance / Quality Control
QAPP	Quality Assurance Project Plan
RAO	Remedial Action Objectives
RAWP	Remedial Action Work Plan
RI	Remedial Investigation
RSCOs	Recommended Site Cleanup Objectives
SCO	Soil Cleanup Objectives
SMP	Site Management Plan
SMMP	Soil/Materials Management Plan

SSDS	Sub-slab Depressurization System
SWPPP	Stormwater Pollution Prevention Plan
SVOCs	Semi-Volatile Organic Compounds
TAL	Target Analyte List
TCLP	Toxicity Characteristic Leachate Procedure
USEPA	United States Environmental Protection Agency
UST	Underground Storage Tank
VOCs	Volatile Organic Compounds

ES EXECUTIVE SUMMARY

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:	Site No: C241234 – Former Andor Medical Systems 26-22 4th Street, Astoria, New York 11102
Institutional Controls:	1. The property may be used for unrestricted use; 2. All ICs as listed in Section 3.2 are listed here: • The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH to render it safe for its intended purpose, 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; • Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement. • The potential for vapor intrusion must be evaluated upon a change in use of the property and for any newly constructed on-Site buildings prior to initial occupancy, and any potential impacts that are identified must be monitored or mitigated. A separate work plan will be submitted to the DEC for the post-construction soil vapor intrusion evaluation.

Monitoring/Inspections:	**Frequency**
1. Groundwater monitoring and sampling for wells MW-1 and MW-2 for two rounds, 6 months apart - and inspection of wells	Bi-annually
Evaluations:	**Frequency**
1. Climate Change Vulnerability Assessment	As Needed
2. Soil Vapor Intrusion Evaluation	As Needed, Upon Change in Use
Reporting:	**Frequency**
1. Groundwater Monitoring Data	Bi-annual
2. Periodic Review Report	Annually, or as otherwise determined by the Department

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

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the Former Andor Medical Systems Site located in Astoria, 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. C241234 which is administered by New York State Department of Environmental Conservation (NYSDEC).

An application for acceptance into the New York State Brownfield Cleanup Program (BCP) was submitted to the New York State Department of Environmental Conservation (DEC). On July 30, 2019, the New York State Department of Environmental Conservation (DEC) informed 4th Street Developments LLC that the property was accepted into the BCP. The Brownfield Cleanup Agreement (BCA) was executed by the DEC on August 29, 2019 (Site No. C-241234) with the Applicant classified as a "Volunteer." The Brownfield Cleanup Agreement (BCA) was fully executed on August 29, 2019. A figure showing the site location and 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) have been incorporated into the site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. An Environmental Easement granted to the NYSDEC, and recorded with the NYC Office of the City Register, requires compliance with this SMP and all ICs placed on the Site.

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

It is important to note that:

- This SMP details the site-specific implementation procedures that are required by the Environmental Easement. Failure to properly implement the SMP is a violation of the Environmental Easement, which is grounds for revocation of the Certificate of Completion (COC);
- Failure to comply with this SMP is also a violation of Environmental Conservation Law, 6NYCRR Part 375 and the BCA (Index #C224284-11-18, Site #C224284) 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 Appendix B of this SMP.

This SMP was prepared by Environmental Business Consultants and reviewed by AMC Engineering, PLLC (AMC), on behalf of QB Development Owner LLC 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 and/or ECs that are required by the Environmental Easement for the Site.

1.2 Revisions

Revisions to this plan will be proposed in writing to the NYSDEC's project manager. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shut-down of a remedial system, post-remedial removal of contaminated sediment or soil, or other significant change to the site conditions. In accordance with the Environmental Easement for the site, the NYSDEC 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:

- 60-day advance notice of any proposed changes in site use that are required under the terms of the BCA, 6NYCRR Part 375 and/or Environmental Conservation Law.
- 7-day advance notice of any field activity associated with the remedial program.
- 15-day advance notice of any proposed ground-intrusive activity pursuant to the Excavation Work Plan.
- 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.
- 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.
- 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:

- 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 Brownfield Cleanup Agreement (BCA), and all approved work plans and reports, including this SMP.
- Within 15 days after the transfer of all or part of the site, the new owner's name, contact representative, and contact information will be confirmed in writing to the NYSDEC.

Table 1 provided below 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 Appendix B.

Table 1: Notifications*

Name	Contact Information
NYSDEC Project Manager Rafi Alam	rafi.alam@dec.ny.gov; (518) 402-8606
NYSDEC Regional Chief, Superfund and Brownfield Cleanup Section Heidi Dudek	Heidi.dudek@dec.ny.gov (518) 402-0193
NYSDEC Site Control Chief Kelly Lewandowski	Kelly.Lewandowski@dec.ny.gov; (518) 402-9553
NYSDOH Project Manager Daniel Tucholski	Daniel.Tucholski@health.ny.gov (518) 402-7860

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

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in the Astoria neighborhood of Queens County and is comprised of a single tax lot (Block 910, Lot 9). Former lots 9 and 35 were combined to form new Lot 9. The street addresses for the Site are 26-22 4th Street and 26-30 4th Street, Astoria, New York 11102 (Figure 1). The Site is rectangular shaped with 100 feet of frontage along 3rd Street and 147.75 feet of frontage along 4th Street (see Figure 2 – Site and Institutional Control Boundaries) for a total of approximately 25,473 square feet (0.584 acres). The boundaries of the Site are more fully described in Appendix A – Environmental Easement. The owner(s) of the Site parcel(s) at the time of issuance of this SMP is/are:

4th Street Developments LLC
143 Division Avenue
Brooklyn, NY 11211

2.2 Physical Setting

2.2.1 Land Use

The redevelopment project for the Site consists of the construction of a new 15-story mixed residential/commercial building and two new multi-family residential buildings (Tower A and Tower B) totaling 99 units. Tower A will be a 7-story building that fronts 4th Street, and Tower B will be a 5-story building that fronts 3rd Street. The project will set aside 30% of the units for affordable housing (no more than 130% AMI).

The Site is zoned R6.

The area surrounding the property is highly urbanized. Properties in the immediate area around the Site are generally industrial/commercial interspersed with residential homes. Large industrial properties are located along the waterfront/26th Avenue, and a large New York City Housing complex is located south of the Site along 27th Avenue. Adjacent land use includes residential homes to the north, 1-story commercial buildings to the south, auto repair shops, a rehabilitation center and commercial building to the east on the opposite

side of 4th Street, and residential homes and industrial buildings to the west on the opposite side of 3rd Street.

Only one school was identified within 1,000 feet of the Site; AHRC – Astoria Blue Feather – Special Education School located at 27-07 8th Street approximately 750 feet to the southeast. The Hallet Cove Child Development Center was identified within the Astoria Houses complex located south of the Site. There were no nursing homes or hospitals identified within 1,000 feet of the Site.

2.2.2 Geology

Soil borings on the site did not encounter bedrock and it is presumed to lie more than 20 feet below ground surface. Unconsolidated sediments overlie the bedrock and consist of Pleistocene-aged sand, gravel, and silt clays deposited by glacial-fluvial activity. Non-native fill materials consisting of dredge spoils, rubble and/or other materials have historically been used to reinforce and extend shoreline areas and to raise and improve the drainage of low-lying areas.

Subsurface soil at the Site consists of historic fill material from 0 to 4 ft below the existing building slab and parking area and up to depths as great as 10 ft (Lot 9 and Lot 35) followed by native fine to medium sand. Groundwater is present under water table conditions at a depth of approximately 4.5 to 6.14 feet below the surface. Based upon on-site measurements, groundwater flow is to the north (Figure 3).

2.2.3 Hydrogeology

Groundwater is present under water table conditions at a depth of approximately 4.5 to 6.14 feet below the surface and was determined to flow to the north.

A groundwater contour map is shown in Figure 3. Groundwater elevation data is provided in Table 5. Groundwater monitoring well construction logs are provided in Appendix I.

2.3 Investigation and Remedial History

Investigations performed at the Site include the following:

- Phase I Environmental Site Assessment (AES, August, 2018)

- Focused Phase II Subsurface Site Investigation (AES, October, 2018)
- Remedial Investigation Report (EBC, March 2020)

Phase I Environmental Site Assessment (AES)

In August 2018, Associated Environmental Services (AES) performed a due diligence Phase I Environmental Site Assessment at the 26-22 4th Street property. AES reported the following Recognized Environmental Conditions (RECs) in connection with the Property:

- The Property was occupied by Andor Medical Systems around 1991 which may have used chemicals related to medical imaging.
- According to NYCDOB, Department of Finance Building Classification for Lot 35 is GARAGE/GAS STATION.
- A data gap exists for the tenants of the Property from 1961 to 1983.
- A 2,000-gallon fuel oil underground storage tank (UST) is present at the Property. According to the records provided, the UST had recently passed a tightness test. However, the UST is registered as being installed in 1961. Due to the age and known useful life of single wall steel USTs (approximately 30 years) and the fact the top has been excavated, subsurface testing is recommended.

Focused Subsurface Site Investigation (AES, October 2018)

The subsurface investigation performed by AES was performed as part of a due diligence environmental assessment to further investigate the property and recognized environmental conditions that were identified in the Phase I ESA report. The subsurface investigation included a geophysical survey, and the advancement of 9 soil borings and the collection of 3 groundwater samples.

The results of soil analysis reported elevated levels of volatile and semi-volatile organic compounds (VOCs/SVOCs), pesticides, PCBs and metals. The chlorinated solvents cis-1,2-dichloroethene (cis-DCE), tetrachloroethene (PCE) and trichloroethene (TCE) were reported above Protection of Groundwater Soil Cleanup Objectives (SCOs) in one or more samples. Multiple SVOCs were reported in 4 of 6 soil samples above Restricted Residential and/or Restricted Commercial SCOs. The metals barium and lead were also reported above Restricted Commercial SCOs. The pesticide 4,4'-DDE, the PCB PCB-1254, and the metal

mercury were all reported above Unrestricted Use SCOs.

The chlorinated VOCs, PCE, TCE and cis-DCE were all reported above Groundwater Quality Standards in all three groundwater samples collected by AES.

Remedial Investigation Report (EBC, March 2020)

A Remedial Investigation was completed at the Site from December 10, 2019, through December 30, 2019, and documented in a Remedial Investigation Report dated March 2020. The goals of the Remedial Investigation were to define the nature and extent of contamination in soil, groundwater and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Work Plan to address the contamination.

Activities completed under the RI:

- The installation of ten soil borings to collect twenty soil samples for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, PCBs, metals and emerging contaminants;
- The installation of six groundwater monitoring wells and the collection of six groundwater samples for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, and total and dissolved metals and emerging contaminants;
- The collection of analysis of six sub-slab soil gas samples and two soil vapor samples for VOCs from eight sampling locations.

Soil - Several VOCs were detected in the subsurface that exceeded their applicable Unrestricted Use Soil Cleanup Objectives (UUSCOs) and Protection of Groundwater Soil Cleanup Objectives (PGWSCOs); tetrachloroethene was detected up to 5.6 parts per million (ppm) (UUSCO and PGWSCO are 1.3 ppm), trichloroethene was detected up to 1.4 ppm (UUSCO and PGWSCO are 0.47ppm), cis-1,2-dichloroethene was detected up to 0.32 ppm (UUSCO and PGWSCO are 0.25ppm), and acetone up to 0.79 ppm (UUSCO and PGWSCO are 0.05 ppm).

Several SVOCs detected in the subsurface exceeded their respective UUSCOs: benzo(a)anthracene was detected up to 9.4 ppm (UUSCO is 1 ppm); benzo(a)pyrene up to 8.9 ppm (UUSCO is 1 ppm); benzo(b)fluoranthene up to 7.5 ppm (UUSCO is 1 ppm); chrysene up to 9.6 ppm (UUSCO is 1 ppm); indeno(1,2,3-cd)pyrene up to 6.0 ppm (UUSCO is 0.5 ppm); and benzo(k)fluoranthene up to 4.3 ppm (UUSCO is 0.8 ppm). Several metals exceeded their respective UUSCOs, including barium up to 407 ppm (UUSCO is 350 ppm), arsenic up to 14.2 ppm (UUSCO is 13 ppm), mercury up to 2.26 ppm (UUSCO is 0.18 ppm), lead up to 8,430 ppm (UUSCO is 63 ppm and PGWSCO is 450 ppm).

Based on the sampling results, only VOCs and lead required comparison to PGWSCO. Also, based on the sampling results, there is no indication that these contaminants have migrated off-site in soil.

Groundwater - Several VOCs were detected in on-site groundwater at levels exceeding their respective ambient water quality standards (AWQSs); tetrachloroethene up to 43 parts per billion (ppb) (AWQS is 5 ppb), trichloroethene up to 10 ppb (AWQS is 5 ppb) and cis-1,2-dichloroethene up to 15 ppb (GWQS is 5 ppb). Also, metals such as lead was detected up to 84 ppb (AWQS is 25 ppb).

Based on the sampling results, there is no indication that these contaminants have migrated offsite in groundwater.

Compounds detected above AWQS within the groundwater samples collected during the RI are posted on Figure 6.

Sub-Slab Soil Vapor - Petroleum-related VOCs such as benzene, toluene, ethylbenzene, and xylenes (BTEX) were low in all sub-slab soil vapor samples ranging from 9.2 micrograms per cubic meter (µg/m^3) to 18.58 µg/m^3. Chlorinated VOCs were reported in all of the sub-slab soil vapor samples with tetrachloroethene ranging from 6.07 µg/m^3 to 1,130 µg/m^3, trichloroethene ranging from 8.32 µg/m^3 to 57.5 µg/m^3, and cis-1,2-dichloroethene ranging from 0.66 µg/m^3 to 201 µg/m^3.

Based on the sampling results, there is an indication that these contaminants may have migrated off-site.

Soil Vapor - BTEX were low in all soil vapor samples ranging from 5.6 µg/m^3 to 5.97 µg/m^3. Chlorinated VOCs were reported in all of the soil vapor samples with tetrachloroethene ranging 9.9 µg/m^3 to 247 µg/m^3, trichloroethene was detected up to 32.1 µg/m^3, and cis-1,2-dichloroethene was detected up to 18.7 µg/m^3.

Based on the sampling results, there is an indication that these contaminants may have migrated off-site.

Soil vapor detections for the samples collected as part of the Remedial Investigation are posted on Figure 5.

A Remedial Action Work Plan (RAWP) prepared by AMC in May 2020, was approved by the NYSDEC on August 14, 2020. The remedy recommended for the Site within the RAWP was a Conditional Track 1 alternative which was to consist of excavation across the Site to depths varying between 0 to 4 ft below the existing building slab and parking area and up to depths as great as 10 ft (Lot 9 and Lot 35) to remove historic fill material with parameters above Unrestricted Use SCOs, and up to 6 feet to remove all CVOC impacted with parameters above Protection of Groundwater SCOs and Unrestricted Use SCOs, and removal of groundwater contamination through dewatering activities during excavation.

Implementation of the remedy for the Site included the following:

1. Removal of one 2,000-gallon No. 2 fuel oil underground storage tank and collection an analysis of endpoint soil samples to evaluate the performance of the remedy with respect to attainment of Track 1 Unrestricted Use SCOs;
2. Excavation of soil/fill exceeding Track 1 Unrestricted Use SCOs to a minimum depth of 8 feet across the Site to meet Track 1 Unrestricted Use SCOs;
3. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;

4. Collection and analysis of endpoint samples from across the Site to evaluate the performance of the remedy with respect to attainment of Track 1 Unrestricted Use SCOs;
5. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
6. Installation of SOE and a dewatering system to allow for excavation/removal of CVOC impacted soil and historic fill material at/below the groundwater table, and discharge of groundwater to the NYC sewer system under a NYCDEP sewer discharge permit;
7. Installation of two down gradient monitoring wells to collect pre and post-dewatering groundwater samples for VOC (EPA Method 8260) analysis to demonstrate dewatering effectively addressed the pre-remedy groundwater conditions;
8. Import of ¾" bluestone for use as backfill below the building slab in compliance with: (1) chemical limitations and other specifications listed in the RAWP, and (2) all Federal, State, and local rules and regulations for handling and transport of material;
9. Import of clean native soil tested to meet Track 1 Unrestricted Use SCOs for use as backfill below the building slab in compliance with: (1) chemical limitations and other specifications listed in the RAWP, and (2) all Federal, State, and local rules and regulations for handling and transport of material; and
10. A post-construction soil vapor intrusion evaluation will be performed within any new building consisting of the collection and laboratory analysis of sub-slab soil gas samples and indoor air samples. The post-construction soil vapor intrusion evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion within the new building(s);
11. Development and implementation of a Site Management Plan for long term management of remaining contamination at the Site which includes plans for: (1) Institutional Controls, (2) inspections and (3) reporting; and

12. An Environmental Easement recorded against the Site will ensure implementation of the SMP.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated August 2020, are as follows:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

2.5 Remaining Contamination

2.5.1 Soil

Remedial excavation was performed across the Site to a minimum depth of 8 ft below grade. The laboratory results of endpoint soil samples collected at the base of the excavation indicates remaining soil at the Site meets Track 1 Unrestricted Use SCOs.

2.5.2 Groundwater

PCE was detected within the groundwater samples collected as part of the Remedial Investigation in the central area of the existing building (Lot 9), the northeast corner of the existing building (Lot 9), and in the parking area (Lot 35). Concentrations were low (<10 µg/L) in all samples with the exception of the MW2 groundwater sample located in the south – central area of the parking area (Lot 35) near the property line. The PCE concentration at the MW2 location was 43 µg/L. The pesticide 4,4'-DDT was detected in the parts per trillion range in two of the samples and is likely related to suspended solids in the groundwater samples. Two dissolved metals were detected in all of the groundwater samples. Manganese and sodium were detected above AWQS in all six wells and are attributable to residual salt water intrusion. Low levels of PFAS compounds were detected in groundwater throughout the Site.

No VOCs were exceeded the ambient water quality standards within the groundwater samples on November 2021, from monitoring wells MW1 and MW2 following dewatering activities / remedial action. The location of monitoring wells MW1 and MW2 are shown on Figure 7, and the results are summarized on Table 7.

2.5.3 Soil Vapor

Based upon the remedial investigation results, petroleum-related VOCs such as benzene, toluene, ethylbenzene, and xylenes (BTEX) were low in all sub-slab soil vapor samples ranging from 9.2 micrograms per cubic meter (µg/m^3) to 18.58 µg/m^3. Chlorinated VOCs were reported in all of the sub-slab soil vapor samples with tetrachloroethene ranging from 6.07 µg/m^3 to 1,130 µg/m^3, trichloroethene ranging from 8.32 µg/m^3 to 57.5 µg/m^3, and cis-1,2-dichloroethene ranging from 0.66 µg/m^3 to 201 µg/m^3.

2.5.4 Sub-Slab Soil Vapor

Based upon the remedial investigation results, BTEX were low in all soil vapor samples ranging from 5.6 µg/m^3 to 5.97 µg/m^3. Chlorinated VOCs were reported in all of the soil vapor samples with tetrachloroethene ranging 9.9 µg/m^3 to 247 µg/m^3, trichloroethene was detected up to 32.1 µg/m^3, and cis-1,2-dichloroethene was detected up to 18.7 µg/m^3.

Based on the sampling results, there is an indication that these contaminants may have migrated off-site.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

Since remaining contamination exists at the Site, Institutional Controls (ICs) are required to protect human health and the environment. This IC Plan describes the procedures for the implementation and management of all IC at the site. The IC Plan is one component of the SMP and is subject to revision by the NYSDEC.

This plan provides:

- A description of all ICs on the site;
- The basic implementation and intended role of each IC;
- A description of the key components of the ICs set forth in the Environmental Easement;
- A description of the controls to be evaluated during each required inspection and periodic review;
- A description of plans and procedures to be followed for implementation of ICs; and
- Any other provisions necessary to identify or establish methods for implementing the ICs required by the site remedy, as determined by the NYSDEC.

3.2 Institutional Controls

A series of ICs is required by the RAWP for the Site to prevent future exposure to remaining contamination. 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 use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH to render it safe for its intended purpose, 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;
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
- The potential for vapor intrusion must be evaluated upon a change in use of the property and for any newly constructed on-Site buildings prior to initial occupancy, and any potential impacts that are identified must be monitored or mitigated. A separate work plan will be submitted to the DEC for the post-construction soil vapor intrusion evaluation.

4.0 PERIODIC ASSESSMENTS/EVALUATIONS

4.1 Remedial System Optimization

A Remedial Site Optimization (RSO) study will be conducted any time that the NYSDEC 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;
- The management and operation of the remedial system is exceeding the estimated costs;
- The remedial system is not performing as expected or as designed;
- 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.

The RSO study will focuses on overall site cleanup strategy, process optimization and management with the intent of identifying impediments to cleanup and improvements to site operations to increase efficiency, cost effectiveness and remedial time frames.

4.2 Climate Change Vulnerability Assessment

Increases in both the severity and frequency of storms/weather events, an increase in sea level elevations along with accompanying flooding impacts, shifting precipitation patterns

and wide temperature fluctuation, resulting from global climactic change and instability, have the potential to significantly impact the performance, effectiveness and protectiveness of a given site and associated remedial systems. Vulnerability assessments provide information so that the site and associated remedial systems are prepared for the impacts of the increasing frequency and intensity of severe storms/weather events and associated flooding.

This section provides a summary of vulnerability assessments that will be conducted for the site during periodic assessments, and briefly summarizes the vulnerability of the site and/or engineering controls to severe storms/weather events and associated flooding.

The western half of the Site is located within a designated 1% (100yr) flood zone area. The Site is served by the NYC Municipal sewer system and the completed buildings will meet all NYC building codes for drainage.

4.3 Soil Vapor Intrusion Evaluation

A soil vapor intrusion evaluation must be performed upon a change in use of the property and for any newly constructed on-Site buildings prior to initial occupancy. The breadth of this evaluation will be determined based upon discussion with the NYSDEC Project manager and NYSDOH. Based upon these discussion and agency requirements, a work plan will need to be developed that requires that sampling be performed upon a change in use or as deemed necessary by the aforementioned entities. Upon completion of the evaluation, if an action is required, any actions taken or to be taken must be reflected in an updated SMP.

During the RI, sub-slab soil vapor samples were collected from immediately below the former building slab, and soil vapor samples were collected from a depth of approximately 4 ft. As part of the Site remediation, the entire Site was excavated to a minimum depth of 8 ft. As part of construction, a waterproofing membrane/vapor barrier was installed below the building slab to mitigate against the potential for soil vapor intrusion. The results of the post-construction soil vapor intrusion to be performed prior to initial occupancy (within

the new building) will determine if mitigation or monitoring is required. A separate work plan will be submitted to the DEC for the post-construction soil vapor intrusion evaluation.

4.4 Green Remediation Evaluation

NYSDEC's DER-31 Green Remediation requires that green remediation concepts and techniques be considered during all stages of the remedial program including site management, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. This section of the SMP provides a summary of any green remediation evaluations to be completed for the site during site management, and as reported in the Periodic Review Report (PRR).

4.4.1 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 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.

Transportation to and from the Site and use of consumables in relation to visiting the Site in order to inspect the site cover system 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.

As part of this effort, consideration shall be given to:

- Reduced site visits;
- Coordination/consolidation of activities to maximize foreman/labor time; and
- Use of mass transit for site visits, where available.

5.0 MONITORING AND SAMPLING PLAN

5.1 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. Details regarding the sampling procedures, data quality usability objectives, analytical methods, etc. for all samples collected as part of site management for the site are included in the Quality Assurance Project Plan provided in **Attachment F**.

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

- Sampling and analysis of all appropriate media (i.e, groundwater, indoor air, sub-slab soil vapor);
- Assessing compliance with applicable NYSDEC standards, criteria and guidance (SCGs), particularly 6 NYCRR Part 703 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.

The monitoring activities are described in greater in the following section and reporting requirements are provided in **Section** 6.0 of this SMP.

5.2 Monitoring Well Inspection

Inspection of both monitoring wells will be performed on a bi-annual basis as identified in Table 3 Monitoring Requirements and Schedule (see below). Modification to the frequency or sampling requirements will require approval from the NYSDEC. A visual inspection of the monitoring wells will be conducted during each monitoring event. Unscheduled inspections and/or sampling may take place when an emergency occurs that is deemed likely to affect the operation of the system. Monitoring well parameters to be monitored include, but are not limited to, the components included in Table 3 below.

Table 3 – Monitoring Requirements and Schedule

ISCO System Component	Monitoring Parameter	Monitoring Schedule
Monitoring Wells	Condition, PID Screen, Depth to water, depth to bottom.	Bi-annual

A complete list of components to be inspected is provided in the Inspection Checklist, provided in Attachment H - Site Management Forms. If the monitoring wells have been damaged, lost, or require redevelopment, maintenance and repair, as per the Operation and Maintenance Plan, is required immediately.

5.3 Post-Remediation Media Monitoring and Sampling

5.3.1 Groundwater

Groundwater monitoring activities to assess bulk asymptotic attenuation will continue, as determined by the NYSDEC with consultation with NYSDOH, until residual groundwater concentrations are found to be consistently below ambient water quality standards, the site SCGs, or have become asymptotic at an acceptable level over an extended period. In the event that monitoring data indicates that monitoring for bulk asymptotic attenuation may no longer be required, a proposal to discontinue monitoring will be submitted by the remedial party. Monitoring will continue until permission to discontinue is granted in writing by the NYSDEC. If groundwater contaminant levels become asymptotic at a level that is not acceptable to the NYSDEC, additional control measures will be evaluated.

Groundwater samples shall be collected from the existing monitoring wells on a routine bi-annual basis until a bulk reduction to asymptotic concentrations has been demonstrated.

Sampling locations, required analytical parameters, and schedule are provided in Table 3 – Post Remediation Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 4. Post Remediation Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	Schedule
MW1	VOCs (EPA Method 8260C)	Bi-annual
MW2	VOCs (EPA Method 8260C)	Bi-annual
Container	(3) 40mL VOAs preserved with HCL	

Detailed sample collection and analytical procedures and protocols are provided in Attachment E – Field Activities Plan and Attachment F – Quality Assurance Project Plan. Health and Safety Procedures for groundwater sampling are provided in Attachment F – Health and Safety Plan. Community Air Monitoring procedures during groundwater sampling are provided in Attachment G – Community Air Monitoring Plan.

Table 4 summarizes the wells identification number, as well as the purpose, location, depths, diameter, and screened intervals of the wells. As part of the groundwater monitoring, the existing monitoring wells are sampled to evaluate the natural attenuation of the groundwater contamination. Monitoring well construction logs are included in Attachment D of this document.

Table 5. Monitoring Well Construction Details

Monitoring Well ID	Well Location	Well Diameter (inches)	Elevation (above mean sea level)			
			Casing	Surface	Screen Top	Screen Bottom
MW-1	Downgradient	2	0 ft bgs	0 ft bgs	3 ft bgs	13 ft bgs
MW-2	Upgradient	2	0 ft bgs	0 ft bgs	3 ft bgs	13 ft bgs

Monitoring well locations are shown on Figure 3.

Groundwater monitoring will be performed on a routine bi-annual basis to assess the performance of the remedy. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

The results of the bi-annual groundwater sampling events will be indicated in Periodic Review Reports (PRR). Detailed sample collection and analytical procedures and protocols are provided in Attachment E – Field Sampling Plan and Attachment F – Quality Assurance Project Plan.

Both wells are constructed of 2-inch PVC casing with a 10-ft 0.010 screened section set to approximately 5 feet below the water table. The wells were completed with a No. 01 morie gravel pack paced to a depth of approximately 1 foot above the screen followed by a hydrated bentonite seal.

If biofouling or silt accumulation occurs in the 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 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. 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. The sampling frequency may only be modified with the approval of the NYSDEC. This SMP will be modified to reflect changes in sampling plans approved by the NYSDEC. Deliverables for the groundwater monitoring program are specified in Section 6.0 – Reporting Requirements.

All sampling activities will be recorded in a field book and associated sampling log as provided in Attachment D - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) 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 site-specific Field Sampling Plan provided as Attachment J of this document.

Groundwater Sampling Protocol

Groundwater samples will be collected from all wells (19MW9, 20MW1, 20MW2). Sample procurement will be achieved through the use of dedicated polyethylene tubing, a and a peristaltic pump.

All groundwater sampling activities will be recorded in the project dedicated field book. This will include a description of:

- Date and time of sample collection
- Sample location
- Purging time, duration and volume;
- Sample appearance
- Analytical methodology:

Groundwater samples will be collected using a peristaltic pump and dedicated polyethylene tubing in accordance with standard low-flow sampling procedures as follows:

- Record pump make & model on sampling form.
- Wear appropriate health and safety equipment as outlined in the Health and Safety Plan
- Inspect each well for any damage or evidence of tampering and note condition in field logbook.
- Remove the well cap.
- Lay out plastic sheeting and place the monitoring, purging and sampling equipment on the sheeting.
- To avoid cross-contamination, do not let any downhole equipment touch the ground.
- Measure well headspace with a PID or FID and record the reading in the field logbook.

- A synoptic water level measurement round should be performed (in the shortest possible time) before any purging and sampling activities begin. Measure and record the depth to water using a water level meter or interface probe to the nearest 0.01 ft. Record the measurement in the field logbook. Do not measure the depth to the bottom of the well at this time (to avoid disturbing any sediment that may have accumulated). Obtain depth to bottom information from installation information in the field logbook or soil boring logs.
- Collect samples in order from wells with lowest contaminant concentration to highest concentration.
- Connect the polyethylene tubing to the peristaltic pump and lower the tubing into the well to approximately the middle of the screen. Tubing should be a minimum of 2 feet above the bottom of the well as this may cause mobilization of any sediment present in the bottom of the well.
- Start the pump at its lowest speed setting and slowly increase the speed until discharge occurs. Check water level. Adjust pump speed until there is little or no water level drawdown (less than 0.3 feet). If the minimal drawdown that can be achieved exceeds 0.3 feet but remains stable, continue purging until indicator field parameters stabilize.
- There should be at least 1 foot of water over the end of the tubing so there is no risk of entrapment of air in the sample. Pumping rates should be reduced to the minimum capabilities of the pump, if needed, to avoid purging the well dry. However, if the recharge rate of the well is very low and the well is purged dry, then wait until the well has recharged to a sufficient level and collect the appropriate volume of sample.
- During well purging, monitor indicator field parameters (turbidity, temperature, specific conductance and pH) every three to five minutes (or less frequently, if appropriate). Sample will not be collected until the turbidity is less than 50 NTUs. Note: during the early phase of purging emphasis should be put on minimizing and stabilizing pumping stress, and recording those adjustments. Purging is considered complete and sampling may begin when all the above indicator field parameters have stabilized. Stabilization is considered to be achieved when three consecutive

readings, taken at three (3) to five (5) minute intervals, are within the following limits:

  - specific conductance (3%),
  - temperature (3%),
  - pH (± 0.1 unit)

- VOC samples should be collected directly into pre-preserved sample containers. Fill all sample containers by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. Fill each container with sample to just overflowing so that no air bubbles are entrapped inside. Cap each bottle as it is filled.
- Label the samples, and record them on the chain of custody form. Place immediately into a cooler for shipment and maintain at 4oC.
- Remove the tubing from the well. The polyethylene tubing must either be dedicated to each well or discarded. If dedicated the tubing should be placed in a large plastic garbage bag, sealed, and labeled with the appropriate well identification number.
- Close and lock the well.
- Decontaminate pump either by changing the surgical pump tubing between wells or as follows:
    1. Flush the equipment/pump with potable water.
    2. Flush with non-phosphate detergent solution. If the solution is recycled, the solution must be changed periodically.
    3. Flush with potable or distilled/deionized water to remove all of the detergent solution. If the water is recycled, the water must be changed periodically.
    4. Flush with isopropyl alcohol (pesticide grade). If equipment blank data from the previous sampling event show that the level of contaminants is insignificant, then this step may be skipped.
    5. Flush with distilled/deionized water. The final water rinse must not be recycled.

Samples will be collected in pre-cleaned laboratory supplied glassware, stored in a cooler with ice and submitted to a New York State ELAP certified environmental laboratory. Groundwater samples from monitoring well locations will be submitted for analysis of TCL VOCs by EPA Method 8260.

All monitoring wells will be surveyed to determine relative casing elevation to the nearest 0.01 ft and horizontal position to the nearest 0.1ft.

5.3.2 Soil Vapor Intrusion Evaluation

Since post-remedial soil vapor sampling was not completed to verify that the remedial objective for soil vapor was attained, a soil vapor intrusion evaluation will be conducted within the completed building prior occupancy. A separate work plan will be submitted to the DEC for the post-construction soil vapor intrusion evaluation. Details for this evaluation will be determined upon completion of the on-Site building.

6.0 REPORTING REQUIREMENTS

6.1 Site Management Reports

All site management inspection, maintenance and monitoring events will be recorded on the appropriate site management forms provided in Appendix G. These forms are subject to NYSDEC revision.

All applicable inspection forms and other records, including media sampling data and system maintenance reports, generated for the site during the reporting period will be provided in electronic format to the NYSDEC in accordance with the requirements of Table 6 and summarized in the Periodic Review Report.

Table 6: Schedule of Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Groundwater Sampling Report	Bi-annual
Periodic Review Report	Annually, or as otherwise determined by the Department

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

All interim 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, etc);
- Copies of all field forms completed (e.g., well sampling logs, chain-of-custody documentation, etc.);
- 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^{TM} database in accordance with the requirements found at this link:

http://www.dec.ny.gov/chemical/62440.html.

6.2 Periodic Review Report

A Periodic Review Report (PRR) will be submitted to the Department beginning sixteen (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 Department or at another frequency as may be required by the Department. In the event that the Site is subdivided into separate parcels with different ownership, a single Periodic Review Report will be prepared that addresses the Site described in Appendix A - Environmental Easement. The report will be prepared in accordance with NYSDEC's DER-10 and submitted within 30 days of the end of each certification period. Media sampling results will also be incorporated into the Periodic Review Report. The report will include:

- Identification, assessment and certification of all ICs required by the remedy for the site.
- Results of the required annual site 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.
- 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 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^{TM} database in

accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

- A site evaluation, which includes the following:
  - The compliance of the remedy with the requirements of the site-specific RAWP and Decision Document;
  - The operation and the effectiveness of all engineering controls, including identification of any needed repairs or modifications;
  - Any new conclusions or observations regarding Site contamination based on inspections;
  - Recommendations regarding any necessary changes to the remedy; and
  - The overall performance and effectiveness of the remedy.

6.2.1 Certification of Institutional Controls

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

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

- *The Institutional Control employed at this site is unchanged from the date the control was put in place, or last approved by the Department;*
- *Nothing has occurred that would impair the ability of the control to protect the public health and environment;*
- *Nothing has occurred that would constitute a violation or failure to comply with any 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.*

- *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*
- *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 or Owner's Designated Site Representative] (and if the site consists of multiple properties): [and I have been authorized and designated by all site owners to sign this certification] for the site."

The signed certification will be included in the Periodic Review Report.

The Periodic Review Report will be submitted, in electronic format, to the NYSDEC Central Office, Regional Office in which the site is located and the NYSDOH Bureau of Environmental Exposure Investigation. The Periodic Review Report may need to be submitted in hard-copy format, as requested by the NYSDEC project manager.

6.3 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, a Corrective Measures Work Plan will be submitted to the NYSDEC 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.

6.4 Remedial Site Optimization Report

In the event that an RSO is to be performed (see Section 4.1) upon completion of an RSO, an RSO report must be submitted to the Department for approval. A general outline for the RSO report is provided in Appendix J. 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 Central Office, Regional Office in which the site is located, Site Control and the NYSDOH Bureau of Environmental Exposure Investigation.

7.0 REFERENCES

Former Andor Medical Systems - BCP No. C241234. Remedial Action Work Plan, prepared by ACM Engineering, dated May 2020.

Former Andor Medical Systems - BCP No. C241234. Remedial Investigation Report, prepared by Environmental Business Consultants, dated May 2020.

Decision Document, Former Andor Medical Systems, Brownfield Cleanup Program Site No. C241234, prepared by NYSDEC Division of Environmental Remediation, dated August 2020.

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

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

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

TABLES

Former Andor Medical Systems
C241234

Table 2
26-22 4th Street
Queens, New York
RI Groundwater Exceedences Above AWQS

COMPOUND	Range in Exceedances	Frequency of Detection	GW-2	GW-5	GW-8	MW1	MW2	MW3		MW4	MW5	MW6
			9/20/2018	9/20/2018	9/20/2018	12/17/2019	12/17/2019	12/17/2019	1/28/2020	12/17/2019	12/17/2019	12/17/2019
Sample Results in µg/kg												
Tetrachloroethene	8.1 - 43	5	**15**	**16**	**5.2**	**9.9**	**43**	**9.1**	**8.1**	**13**	-	-
cis-1,2-Dichloroethene	9.9-15	2	**15**	-	-	-	-	-	-	**9.9**	-	-
Trichloroethene	10	1	**10**	-	-	-	-	-	-	-	-	-
Sample Results in µg/kg												
4,4-DDT	0.026 - 0.028	2				-	-	-	-	**0.026**	**0.028**	-
Sample Results in mg/kg												
Aluminum	0.90 - 12.8	7				**1.25**	**8.31**	**1.09**	**12.8**	**1.53**	**0.90**	**1.01**
Iron	1.19 - 15.8	7				**1.19**	**15.8**	**1.24**	**12.4**	**2.24**	**1.29**	**1.50**
Lead	0.025 - 0.084	2				-	**0.084**	-	**0.025**	-	-	-
Manganese	0.68 - 1.94	6				-	**1.07**	**0.68**	**1.04**	**1.94**	**0.72**	**1.47**
Selenium	0.014 - 0.016	2				-	**0.014**	-	-	-	**0.016**	-
Sodium	46.7 - 211	6				-	**46.7**	**209**	**211**	**112**	**97.8**	**143**
Sample Results in mg/kg												
Magnesium (Dissolved)	0.43 - 0.447	6				**0.447**	**0.446**	**0.447**	-	**0.455**	**0.444**	**0.430**
Sodium (Dissolved)	179 - 199	6				**179**	**197**	**199**	-	**188**	**196**	**188**

Notes:

Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

Former Andor Medical Systems
C241234

Table 7
26-22 4th Street
Queens, New York
Post-Dewatering Groundwater Sample Results
Volatile Organic Compounds

Compound	NYSDEC Groundwater Quality Standards	MW1		MW2	
		11/9/2021		11/9/2021	
		µg/L		µg/L	
	µg/L	Result	RL	Result	RL
1,1,1,2-Tetrachlorothane	5	< 1.0	1.0	< 1.0	1.0
1,1,1-Trichloroethane	5	< 5.0	5.0	< 5.0	5.0
1,1,2,2-Tetrachloroethane	5	< 1.0	1.0	< 1.0	1.0
1,1,2-Trichloroethane	1	< 1.0	1.0	< 1.0	1.0
1,1-Dichloroethane	5	< 5.0	5.0	< 5.0	5.0
1,1-Dichloroethene	5	< 1.0	1.0	< 1.0	1.0
1,1-Dichloropropene	5	< 1.0	1.0	< 1.0	1.0
1,2,3-Trichlorobenzene		< 1.0	1.0	< 1.0	1.0
1,2,3-Trichloropropane	0.04	< 0.25	0.25	< 0.25	0.25
1,2,4-Trichlorobenzene		< 1.0	1.0	< 1.0	1.0
1,2,4-Trimethylbenzene	5	< 1.0	1.0	< 1.0	1.0
1,2-Dibromo-3-chloropropane	0.04	< 0.50	0.50	< 0.50	0.50
1,2-Dibromoethane	0.0006	< 0.25	0.25	< 0.25	0.25
1,2-Dichlorobenzene		< 1.0	1.0	< 1.0	1.0
1,2-Dichloroethane	0.6	< 0.60	0.60	< 0.60	0.60
1,2-Dichloropropane	1	< 1.0	1.0	< 1.0	1.0
1,3,5-Trimethylbenzene	5	< 1.0	1.0	< 1.0	1.0
1,3-Dichlorobenzene	3	< 1.0	1.0	< 1.0	1.0
1,3-Dichloropropane	5	< 1.0	1.0	< 1.0	1.0
1,4-Dichlorobenzene		< 1.0	1.0	< 1.0	1.0
1,4-Dioxane		< 100	100	< 100	100
2,2-Dichloropropane	5	< 1.0	1.0	< 1.0	1.0
2-Chlorotoluene	5	< 1.0	1.0	< 1.0	1.0
2-Hexanone (Methyl Butyl Ketone)	50	< 2.5	2.5	< 2.5	2.5
2-Isopropyltoluene	5	< 1.0	1.0	< 1.0	1.0
4-Chlorotoluene	5	< 1.0	1.0	< 1.0	1.0
4-Methyl-2-Pentanone		< 2.5	2.5	< 2.5	2.5
Acetone	50	< 5.0	5.0	< 5.0	5.0
Acrolein	5	< 5.0	5.0	< 5.0	5.0
Acrylonitrile	5	< 5.0	5.0	< 5.0	5.0
Benzene	1	< 0.70	0.70	< 0.70	0.70
Bromobenzene	5	< 1.0	1.0	< 1.0	1.0
Bromochloromethane	5	< 1.0	1.0	< 1.0	1.0
Bromodichloromethane	50	< 1.0	1.0	< 1.0	1.0
Bromoform	50	< 5.0	5.0	< 5.0	5.0
Bromomethane	5	< 5.0	5.0	< 5.0	5.0
Carbon Disulfide		< 1.0	1.0	< 1.0	1.0
Carbon tetrachloride	5	< 1.0	1.0	< 1.0	1.0
Chlorobenzene	5	< 5.0	5.0	< 5.0	5.0
Chloroethane	5	< 5.0	5.0	< 5.0	5.0
Chloroform	7	**1.5**	5.0	< 5.0	5.0
Chloromethane	5	< 5.0	5.0	< 5.0	5.0
cis-1,2-Dichloroethene	5	**0.3**	1.0	**1.3**	1.0
cis-1,3-Dichloropropene	0.04	< 0.40	0.40	< 0.40	0.40
Dibromochloromethane	50	< 1.0	1.0	< 1.0	1.0
Dibromomethane	5	< 1.0	1.0	< 1.0	1.0
Dichlorodifluoromethane	5	< 1.0	1.0	< 1.0	1.0
Ethylbenzene	5	< 1.0	1.0	< 1.0	1.0
Hexachlorobutadiene	0.5	< 0.50	0.50	< 0.50	0.50
Isopropylbenzene	5	< 1.0	1.0	< 1.0	1.0
m&p-Xylenes		< 1.0	1.0	< 1.0	1.0
Methyl Ethyl Ketone (2-Butanone)	50	< 2.5	2.5	< 2.5	2.5
Methyl t-butyl ether (MTBE)		< 1.0	1.0	< 1.0	1.0
Methylene chloride	5	< 3.0	3.0	< 3.0	3.0
Naphthalene	10	< 1.0	1.0	< 1.0	1.0
n-Butylbenzene	5	< 1.0	1.0	< 1.0	1.0
n-Propylbenzene	5	< 1.0	1.0	< 1.0	1.0
o-Xylene	5	< 1.0	1.0	< 1.0	1.0
p-Isopropyltoluene	5	< 1.0	1.0	< 1.0	1.0
sec-Butylbenzene	5	< 1.0	1.0	< 1.0	1.0
Styrene	5	< 1.0	1.0	< 1.0	1.0
Tert-butyl alcohol		< 1.0	1.0	< 1.0	1.0
tert-Butylbenzene	5	< 50	50	< 50	50
Tetrachloroethene	5	**0.6**	1.0	**2.5**	1.0
Tetrahydrofuran (THF)	50	< 5.0	5.0	< 5.0	5.0
Toluene	5	< 1.0	1.0	< 1.0	1.0
trans-1,2-Dichloroethene	5	< 5.0	5.0	< 5.0	5.0
trans-1,3-Dichloropropene	0.4	< 0.40	0.40	< 0.40	0.40
trans-1,4-dichloro-2-butene	5	< 2.5	2.5	< 2.5	2.5
Trichloroethene	5	**3.9**	1.0	**1.2**	1.0
Trichlorofluoromethane	5	< 1.0	1.0	< 1.0	1.0
Trichlorotrifluoroethane	5	< 1.0	1.0	< 1.0	1.0
Vinyl Chloride	2	< 1.0	1.0	< 1.0	1.0

Notes:
RL - Reporting Limit
Bold/highlighted- Indicated exceedance of the NYSDEC Groundwater Standard

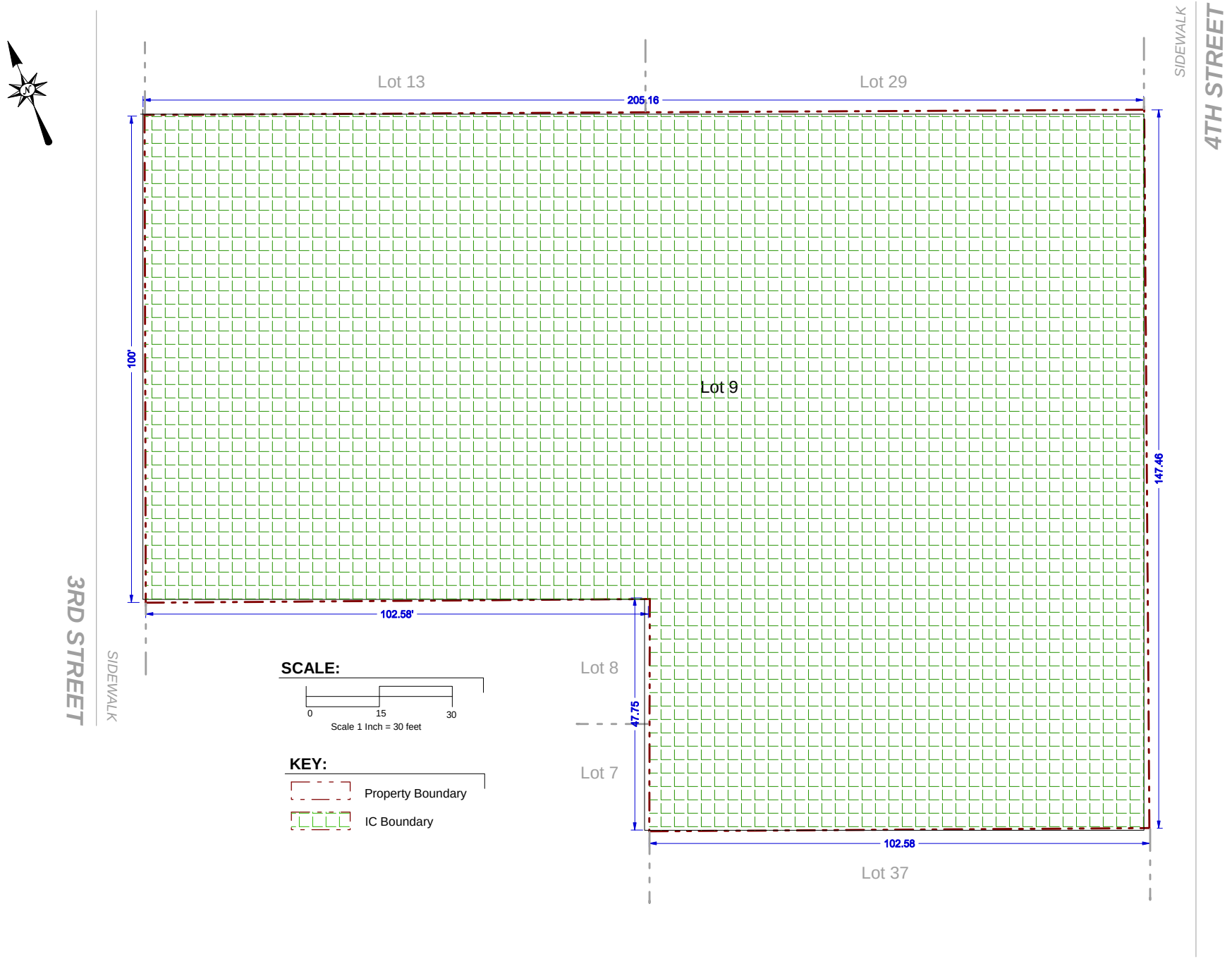
FIGURES

USGS Brooklyn, NY Quadrangle 1995, Contour Interval = 10 ft.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. 1

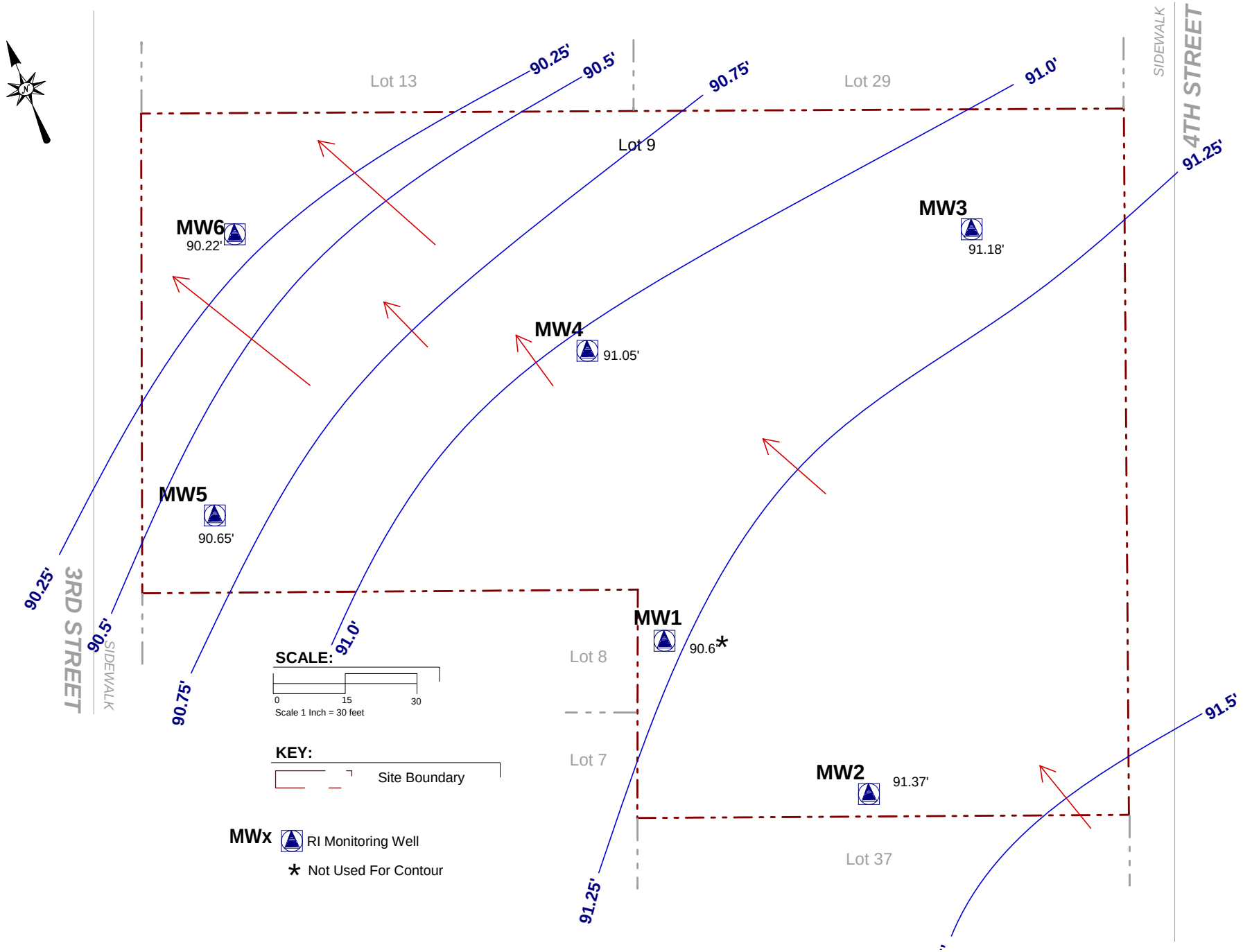
Site Name: FORMER ANDOR MEDICAL SYSTEMS C241234
Site Address: 26-22 4TH STREET, QUEENS, NY
Drawing Title: SITE LOCATION MAP



AMC Engineering
1836 42nd Street
Astoria, NY 11105

Figure No.
2

Site Name: Former Andor Medical Systems C241234
Site Address: 26-22 4th Street, Queens, NY
Drawing Title: Site and Institutional Control Boundaries



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Fax 631. 924 .2870

Figure No. 3

Site Name: FORMER ANDOR MEDICAL SYSTEMS - C241234
Site Address: 26-22 4TH STREET, QUEENS, NY
Drawing Title: GROUNDWATER CONTOUR MAP - DECEMBER 2019

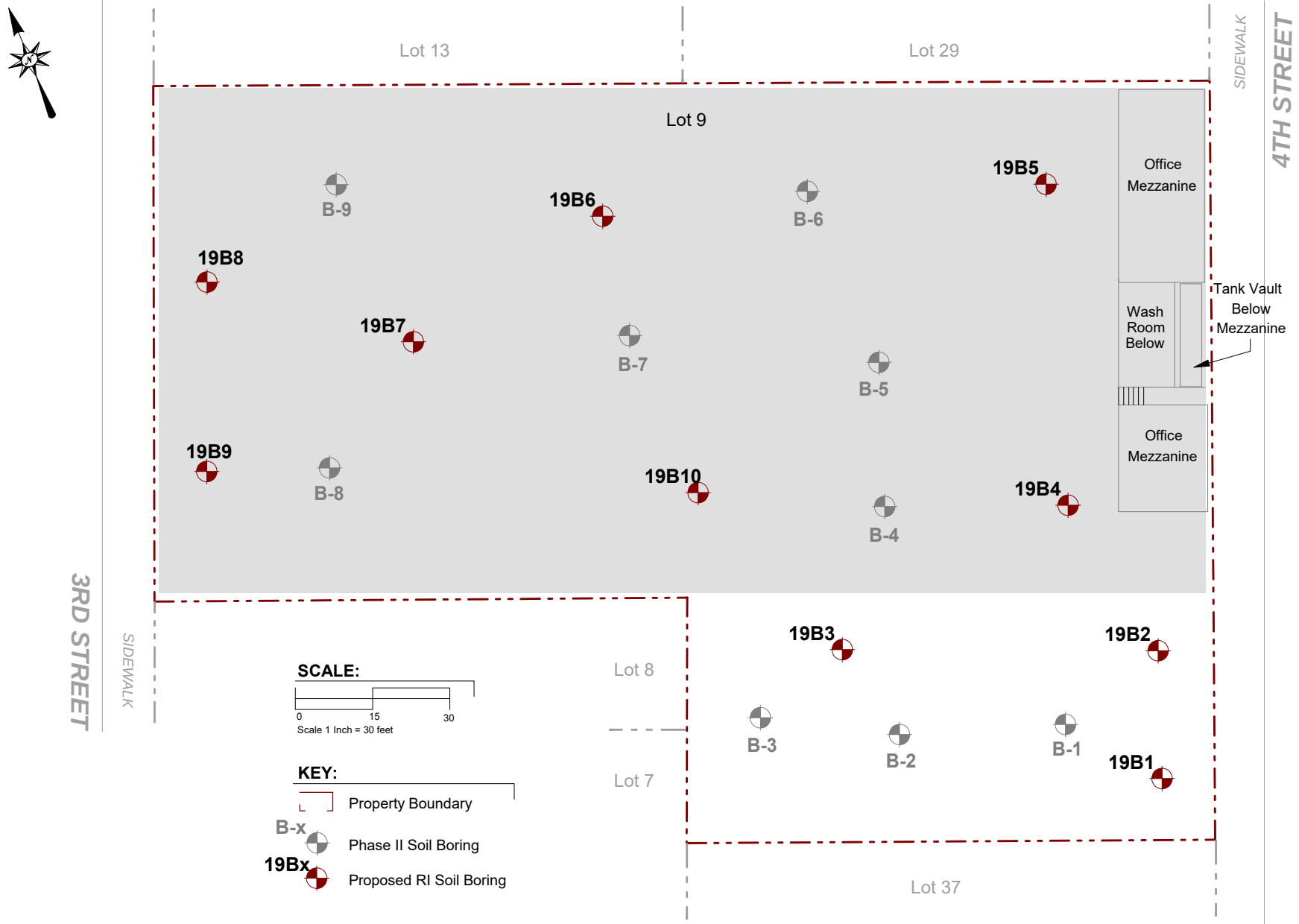

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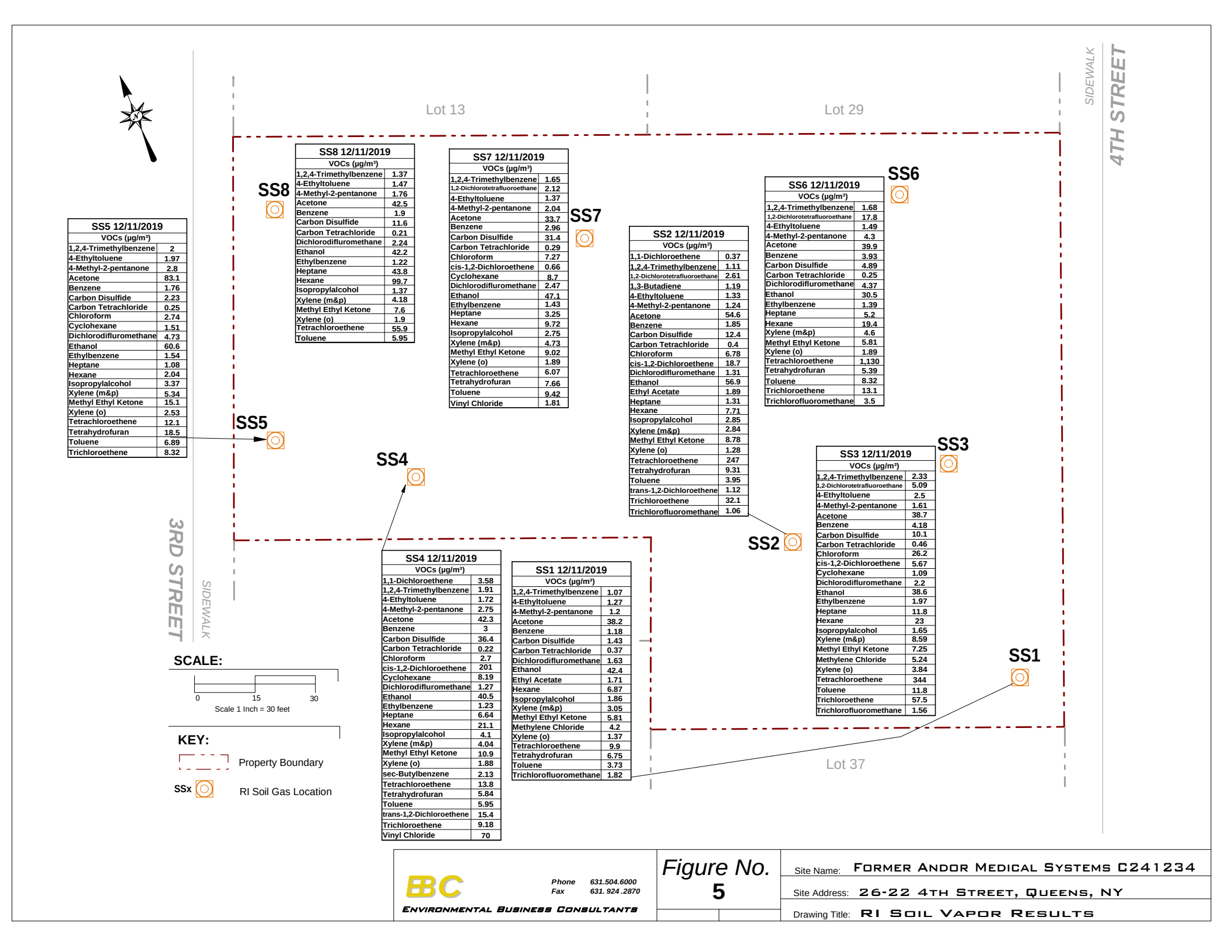
Figure No. 4

Site Name: FORMER ANDOR MEDICAL SYSTEMS C241234

Site Address: 26-22 4TH STREET, QUEENS, NY

Drawing Title: SOIL BORING LOCATION MAP



SS5 12/11/2019	
VOCs (µg/m³)	
1,2,4-Trimethylbenzene	2
4-Ethyltoluene	1.97
4-Methyl-2-pentanone	2.8
Acetone	83.1
Benzene	1.76
Carbon Disulfide	2.23
Carbon Tetrachloride	0.25
Chloroform	2.74
Cyclohexane	1.51
Dichlorodifluromethane	4.73
Ethanol	60.6
Ethylbenzene	1.54
Heptane	1.08
Hexane	2.04
Isopropylalcohol	3.37
Xylene (m&p)	5.34
Methyl Ethyl Ketone	15.1
Xylene (o)	2.53
Tetrachloroethene	12.1
Tetrahydrofuran	18.5
Toluene	6.89
Trichloroethene	8.32

SS8 12/11/2019	
VOCs (µg/m³)	
1,2,4-Trimethylbenzene	1.37
4-Ethyltoluene	1.47
4-Methyl-2-pentanone	1.76
Acetone	42.5
Benzene	1.9
Carbon Disulfide	11.6
Carbon Tetrachloride	0.21
Dichlorodifluromethane	2.24
Ethanol	42.2
Ethylbenzene	1.22
Heptane	43.8
Hexane	99.7
Isopropylalcohol	1.37
Xylene (m&p)	4.18
Methyl Ethyl Ketone	7.6
Xylene (o)	1.9
Tetrachloroethene	55.9
Toluene	5.95

SS7 12/11/2019	
VOCs (µg/m³)	
1,2,4-Trimethylbenzene	1.65
1,2-Dichlorotetrafluoroethane	2.12
4-Ethyltoluene	1.37
4-Methyl-2-pentanone	2.04
Acetone	33.7
Benzene	2.96
Carbon Disulfide	31.4
Carbon Tetrachloride	0.29
Chloroform	7.27
cis-1,2-Dichloroethene	0.66
Cyclohexane	8.7
Dichlorodifluromethane	2.47
Ethanol	47.1
Ethylbenzene	1.43
Heptane	3.25
Hexane	9.72
Isopropylalcohol	2.75
Xylene (m&p)	4.73
Methyl Ethyl Ketone	9.02
Xylene (o)	1.89
Tetrachloroethene	6.07
Tetrahydrofuran	7.66
Toluene	9.42
Vinyl Chloride	1.81

SS2 12/11/2019	
VOCs (µg/m³)	
1,1-Dichloroethene	0.37
1,2,4-Trimethylbenzene	1.11
1,2-Dichlorotetrafluoroethane	2.61
1,3-Butadiene	1.19
4-Ethyltoluene	1.33
4-Methyl-2-pentanone	1.24
Acetone	54.6
Benzene	1.85
Carbon Disulfide	12.4
Carbon Tetrachloride	0.4
Chloroform	6.78
cis-1,2-Dichloroethene	18.7
Dichlorodifluromethane	1.31
Ethanol	56.9
Ethyl Acetate	1.89
Heptane	1.31
Hexane	7.71
Isopropylalcohol	2.85
Xylene (m&p)	2.84
Methyl Ethyl Ketone	8.78
Xylene (o)	1.28
Tetrachloroethene	247
Tetrahydrofuran	9.31
Toluene	3.95
trans-1,2-Dichloroethene	1.12
Trichloroethene	32.1
Trichlorofluoromethane	1.06

SS6 12/11/2019	
VOCs (µg/m³)	
1,2,4-Trimethylbenzene	1.68
1,2-Dichlorotetrafluoroethane	17.8
4-Ethyltoluene	1.49
4-Methyl-2-pentanone	4.3
Acetone	39.9
Benzene	3.93
Carbon Disulfide	4.89
Carbon Tetrachloride	0.25
Dichlorodifluromethane	4.37
Ethanol	30.5
Ethylbenzene	1.39
Heptane	5.2
Hexane	19.4
Xylene (m&p)	4.6
Methyl Ethyl Ketone	5.81
Xylene (o)	1.89
Tetrachloroethene	1,130
Tetrahydrofuran	5.39
Toluene	8.32
Trichloroethene	13.1
Trichlorofluoromethane	3.5

SS3 12/11/2019	
VOCs (µg/m³)	
1,2,4-Trimethylbenzene	2.33
1,2-Dichlorotetrafluoroethane	5.09
4-Ethyltoluene	2.5
4-Methyl-2-pentanone	1.61
Acetone	38.7
Benzene	4.18
Carbon Disulfide	10.1
Carbon Tetrachloride	0.46
Chloroform	26.2
cis-1,2-Dichloroethene	5.67
Cyclohexane	1.09
Dichlorodifluromethane	2.2
Ethanol	38.6
Ethylbenzene	1.97
Heptane	11.8
Hexane	23
Isopropylalcohol	1.65
Xylene (m&p)	8.59
Methyl Ethyl Ketone	7.25
Methylene Chloride	5.24
Xylene (o)	3.84
Tetrachloroethene	344
Toluene	11.8
Trichloroethene	57.5
Trichlorofluoromethane	1.56

SS4 12/11/2019	
VOCs (µg/m³)	
1,1-Dichloroethene	3.58
1,2,4-Trimethylbenzene	1.91
4-Ethyltoluene	1.72
4-Methyl-2-pentanone	2.75
Acetone	42.3
Benzene	3
Carbon Disulfide	36.4
Carbon Tetrachloride	0.22
Chloroform	2.7
cis-1,2-Dichloroethene	201
Cyclohexane	8.19
Dichlorodifluromethane	1.27
Ethanol	40.5
Ethylbenzene	1.23
Heptane	6.64
Hexane	21.1
Isopropylalcohol	4.1
Xylene (m&p)	4.04
Methyl Ethyl Ketone	10.9
Xylene (o)	1.88
sec-Butylbenzene	2.13
Tetrachloroethene	13.8
Tetrahydrofuran	5.84
Toluene	5.95
trans-1,2-Dichloroethene	15.4
Trichloroethene	9.18
Vinyl Chloride	70

SS1 12/11/2019	
VOCs (µg/m³)	
1,2,4-Trimethylbenzene	1.07
4-Ethyltoluene	1.27
4-Methyl-2-pentanone	1.2
Acetone	38.2
Benzene	1.18
Carbon Disulfide	1.43
Carbon Tetrachloride	0.37
Dichlorodifluromethane	1.63
Ethanol	42.4
Ethyl Acetate	1.71
Hexane	6.87
Isopropylalcohol	1.86
Xylene (m&p)	3.05
Methyl Ethyl Ketone	5.81
Methylene Chloride	4.2
Xylene (o)	1.37
Tetrachloroethene	9.9
Tetrahydrofuran	6.75
Toluene	3.73
Trichlorofluoromethane	1.82

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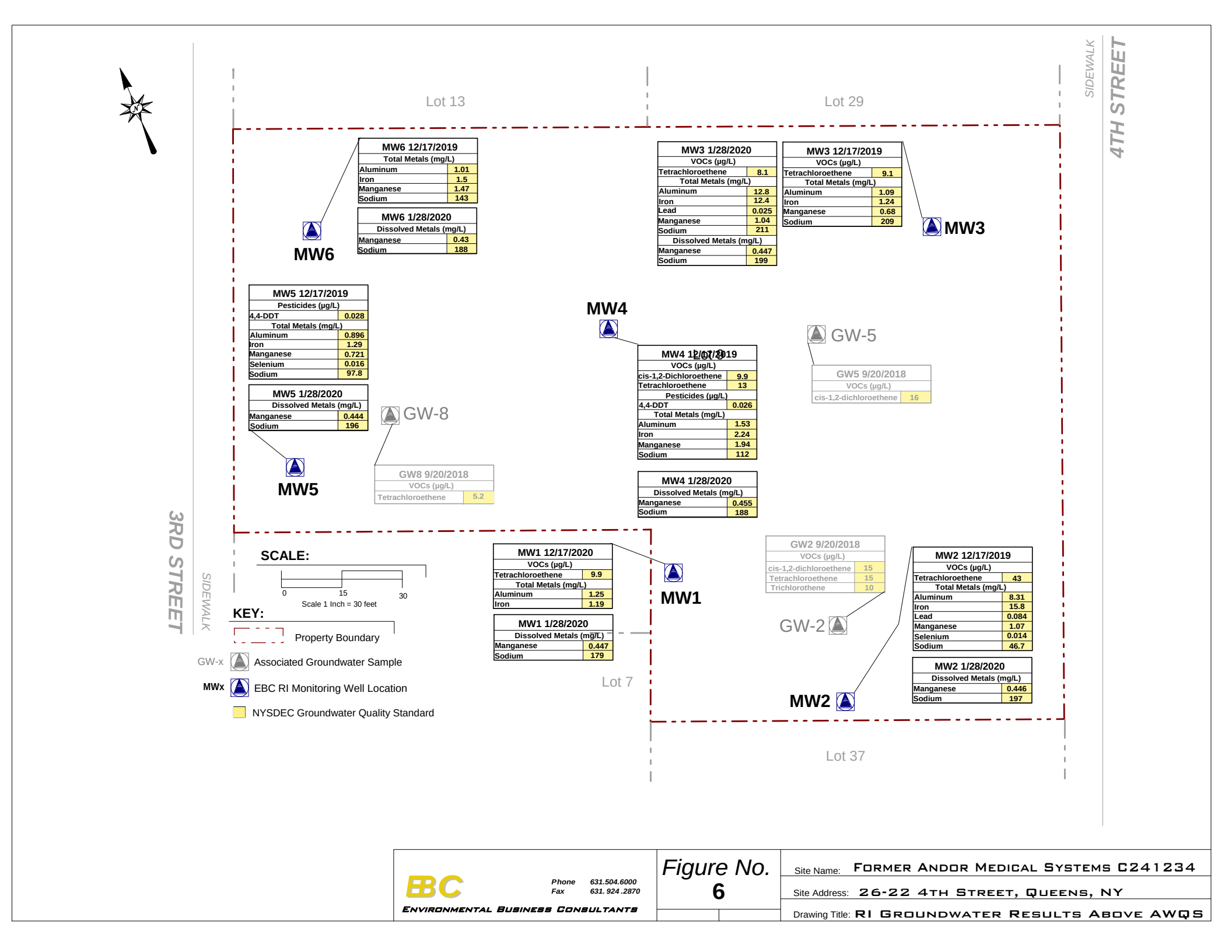
Fax 631. 924 .2870

Figure No. 5

Site Name: Former Andor Medical Systems C241234
Site Address: 26-22 4th Street, Queens, NY
Drawing Title: RI Soil Vapor Results



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Environmental Business Consultants

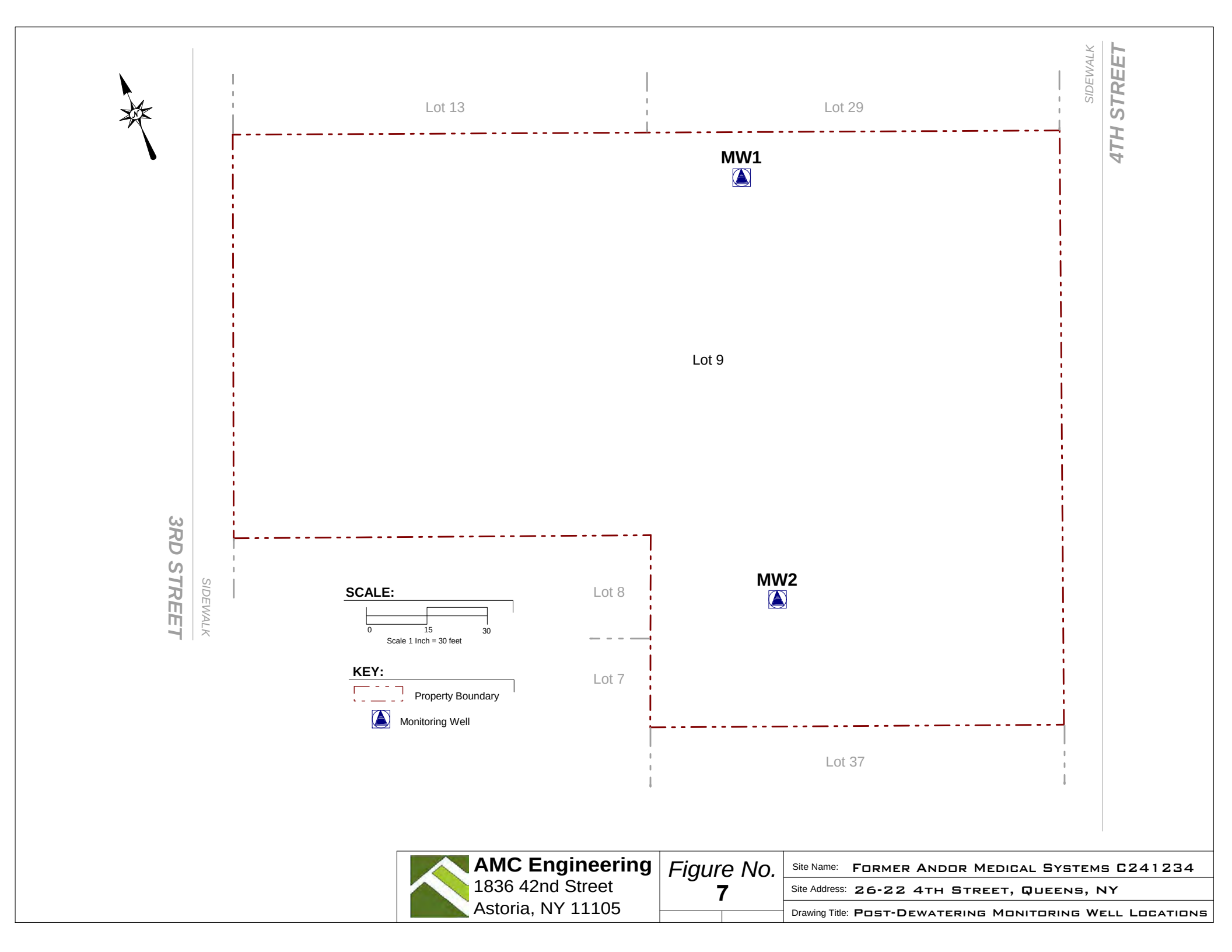
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. 6

Site Name: Former Andor Medical Systems C241234

Site Address: 26-22 4th Street, Queens, NY

Drawing Title: RI Groundwater Results Above AWQS



AMC Engineering
1836 42nd Street
Astoria, NY 11105

Figure No.
7

Site Name: Former Andor Medical Systems C241234
Site Address: 26-22 4th Street, Queens, NY
Drawing Title: Post-Dewatering Monitoring Well Locations

APPENDIX A
Environmental Easement

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.

2021102200709001003ECB03

RECORDING AND ENDORSEMENT COVER PAGE **PAGE 1 OF 10**

Document ID: 2021102200709001 Document Date: 10-19-2021 Preparation Date: 10-22-2021
Document Type: EASEMENT
Document Page Count: 9

PRESENTER:
BETTER RECORDINGS, LLC
1 PARAGON DRIVE - RANY-45196
SUITE 150B
MONTVALE, NJ 07645
REC@BETTERTITLERESEARCH.COM

RETURN TO:
BETTER RECORDINGS, LLC
1 PARAGON DRIVE - RANY-45196
SUITE 150B
MONTVALE, NJ 07645
REC@BETTERTITLERESEARCH.COM

PROPERTY DATA

Borough	Block	Lot	Unit	Address
QUEENS	910	9	Entire Lot	26-24 4TH STREET

Property Type: NON-RESIDENTIAL VACANT LAND

CROSS REFERENCE DATA

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

PARTIES

GRANTOR/SELLER:
4TH STREET DEVELOPMENTS LLC
143 DIVISION AVE
BROOKLYN, NY 11211

GRANTEE/BUYER:
NEW YORK STATE DEPT OF ENVIRONMENTAL CONSERVATION
625 BROADWAY
ALBANY, NY 11223

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:	$	82.00
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 10-27-2021 12:24
City Register File No.(CRFN): **2021000425520**

City Register Official Signature

RANY-45196

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

A.A.

THIS INDENTURE made ~~this~~ as of 19th day of October, 2021, between Owner, 4th Street Developments LLC, having an office at c/o Bruman Realty LLC, 140 Division Avenue, Brooklyn, New York 11211 (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 26-24 4th Street (a/k/a 26-30 4th Street) in the City of New York, County of Queens 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 910 Lot 9 (f/k/a Lots 9 and 35), being the same as that property conveyed to Grantor by deed dated January 17, 2019 and recorded in the City Register of the City of New York as CRFN # 2019000026067. The property subject to this Environmental Easement (the "Controlled Property") comprises approximately 0.5828 +/- acres, and is hereinafter more fully described in the Land Title Survey dated July 15, 2021 prepared by Richard Tom, L.L.S. of Perfect Point Land Surveying RT, 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: C241234-07-19, Grantor conveys to Grantee a permanent Environmental Easement pursuant to ECL Article 71, Title 36 in, on, over, under, and upon the Controlled Property as more fully described herein ("Environmental Easement").

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

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

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

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

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

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

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

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

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

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

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

(9) Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical components of the remedy shall be performed as defined in the 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 assure 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: C241234
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.

4th Street Developments LLC:

By: _____

Print Name: Joseph Brunner

Title: Authorized Signatory Date: 10/15/2021

Grantor's Acknowledgment

STATE OF NEW YORK)
) ss:
COUNTY OF New York)

On the 15th day of October, in the year 2021, before me, the undersigned, personally appeared Joseph Brunner, 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

LAWRENCE HANSEN
NOTARY PUBLIC-STATE OF NEW YORK
No. 02HA6183257
Qualified in New York County
My Commission Expires May 21, 2023

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: _____
Michael J. Ryan, Director
Division of Environmental Remediation

Grantee's Acknowledgment

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

On the 19th day of October in the year 2021 before me, the undersigned, personally appeared Michael J. Ryan, 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

Dale L. Thiel
Notary Public, State of New York
Qualified in Columbia County
No 01TH6414394
Commission Expires February 2/22/2025

SCHEDULE "A" PROPERTY DESCRIPTION

All that certain plot, piece or parcel of land, situate, lying and being in the Borough of Long Island City, County of Queens, City and State of New York, bounded and described as follows:

BEGINNING at a point on the westerly side of 4th Street (formerly Boulevard) as laid out 150.25 feet northerly from the corner formed by the intersection of the westerly side of 4th Street with the northerly side of 27th Avenue (formerly Franklin Street) as now legally established;

RUNNING THENCE northerly along the westerly side of 4th Street, 147.75 (actual) 147.46 feet (deed);

THENCE westerly on a line drawn at right angles to the westerly side of 4th Street, 205.17 feet to the easterly side of 3rd Street (formerly Washington Avenue) as now legally established;

THENCE southerly along the easterly side of 3rd Street, 100 feet (deed) 100.29 feet (actual) to a point distant 192.64 feet northerly measured along the easterly side of 3rd Street from the corner formed by the intersection of the easterly side of 3rd Street with the northerly side of 27th Avenue;

THENCE easterly on a line drawn at right angles to the easterly side of 3rd Street, 102.59 feet;

THENCE southerly on a line drawn at right angles to the easterly side of 3rd Street, 47.46 feet;

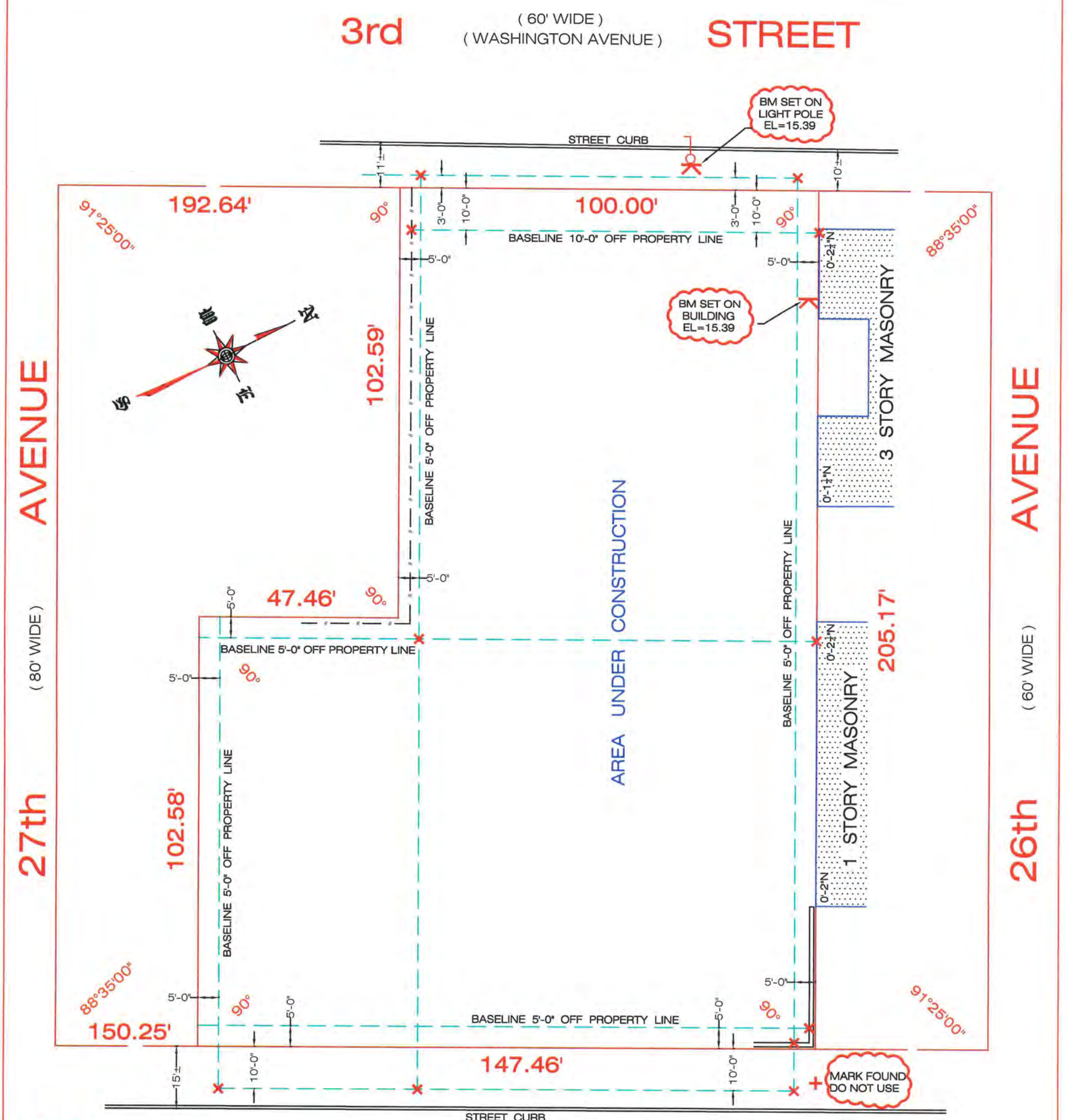
THENCE easterly again at right angles to 4th Street, 102.58 feet to the westerly side of 4th Street at the point or place of BEGINNING.

12.5 0 25 50

ORIGINAL SCALE: 1" = 25'

SURVEY OF PROPERTY AT

QUEENS COUNTY, N.Y.
TAX BLOCK: 910 TAX LOT: 9



LEGEND:

- ...PROPERTY LINE
- ...MARK / CUT SET
- ...ELEVATION SET
- ...BUILDING LINE
- ...BASELINE
- ...CONSTRUCTION FENCE
- ...LIGHT POLE
- ...CUT FOUND DO NOT USED

4th (75' WIDE) STREET

CERTIFIED TO:

NEW YORK CITY DEPARTMENT OF BUILDINGS

NOTES:
1. THERE ARE NO VISIBLE STREAMS NOR NATURAL WATER COURSES IN THE PROPERTY EXCEPT AS SHOWN ON THIS SURVEY.
2. PROPERTY CORNER MONUMENTS WERE NOT PLACED AS PART OF THIS SURVEY.
3. IT IS A VIOLATION OF THE STATE EDUCATION LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY.
4. ARCHITECTS MUST ORDER A TOPOGRAPHICAL MAP SPECIFYING THEIR EXACT NEEDS.
5. CONSULT WITH THE HIGHWAY DEPARTMENT BEFORE DESIGNING, INSTALLING, OR MODIFYING ANY NEW OR EXISTING CURBS, WALKS, OR ROADWAYS IN THE STREETS SHOWN HEREON.
6. SUBSURFACE INFORMATION SHOWN HEREON WAS OBTAINED FROM VARIOUS CITY DEPARTMENTS AND/OR PRIVATE UTILITY COMPANIES. THE SURVEYOR ACCEPTS NO RESPONSIBILITY FOR ANY OF THIS DATA.
7. EASEMENTS OF RECORD ARE ONLY GUARANTEED IF AN ABSTRACT OF TITLE IS FURNISHED TO THE SURVEYOR.
8. ELEVATIONS AS PER DESIGN PLAN.

SURVEY No:- COC2020675

DESCRIPTION:- LAYOUT SURVEY

C.O.C MAPPING CORP.
COORDINATES OF CONSTRUCTION
91-22 215th PLACE
QUEENS VILLAGE, N.Y. 11428
TELEPHONE (347)239-9844
EMAIL:- COCMAPPING@GMAIL.COM

DATE:- DECEMBER 30, 2020

LICENSED LAND SURVEYOR ADRIAN S. [illegible] LSA Lic. No. 050936 L.S. STATE OF NEW YORK

COMPUTED:-MK | DRAFTED:-CJ | CHECKED:- SK

APPENDIX B

List of Site Contacts

APPENDIX B – LIST OF SITE CONTACTS

LIST OF SITE CONTACTS

Name	Phone/Email Address
Site Owner and Remedial Party 4th Street Developments LLC Shimon Drummer	 (718) 687-4247 Shimon@keydevelopers.com
Remedial Engineer AMC Engineering Ariel Czemerinski	(718) 545-0474 ariel@amc-engineering.com
NYSDEC DER Project Manager Rafi Alam	 (518) 402-8606 Rafi.Alam@dec.ny.gov
NYSDEC DER Section Chief Heidi Dudek	 (718) 482-4599 Heidi.dudek@dec.ny.gov
NYSDEC DER Site Control Kelly Lewandowski	 (518) 402-9581 Kelly.Lewandowski@dec.ny.gov
NYSDEC DOH Project Manager Daniel Tucholski	 (518) 402-7874 Daniel.Tucholski@health.ny.gov
Remedial Party Attorney Brenden D. Mahoney	 (212) 972-3300 bm@hansenlawpllc.com

General Emergencies	911
NYC Police	911
NYC Fire Department	911
NYC Department of Health	212-676-2400
NYC Health + Hospital/Elmhurst (Hospital)	718-334-4000
Poison Control	800-222-1222
National Response Center	800-424-8802
NYSDEC Spills Hotline	800-457-7362

APPENDIX C
Field Sampling Plan

FORMER ANDOR MEDICAL SYSTEMS

26-22 4th Street
ASTORIA, NEW YORK
Block 910, Lot 9

FIELD SAMPLING PLAN

NYSDEC Site Number: **C241234**

Prepared for:
4th Street Developments LLC
143 Division Avenue
Brooklyn, NY 11211

Prepared by:

AMC Engineering PLLC
1836 42nd Street
Astoria, NY 11105
516-417-8588

NOVEMBER 2021

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List of Acronyms

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
EC	Engineering Control
ECL	Environmental Conservation Law
ELAP	Environmental Laboratory Approval Program
ERP	Environmental Restoration Program
EWP	Excavation Work Plan
GHG	Green House 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	Operation, Maintenance and Monitoring
OSHA	Occupational Safety and Health Administration
OU	Operable Unit
PID	Photoionization Detector
PRP	Potentially Responsible Party
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
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
SSD	Sub-slab Depressurization
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

1.0 INTRODUCTION

1.1 General

This Field Sampling Plan is a part of the Site Management Plan for the Former Andor Medical Systems site located at 26-22 4th Street, Astoria, New York (hereinafter referred to as the "Site").

4th Street Developments LLC (the Volunteer) entered into a Brownfield Cleanup Agreement with the New York State Department of Environmental Conservation (NYSDEC) on August 29, 2019, to remediate a 0.584-acre parcel located in Astoria, Queens County, New York (Site No. C241234). The Site was remediated to Unrestricted Use and will be used for residential use.

The Site is located in the Astoria neighborhood of Queens County and is comprised of a single tax lot (Block 910, Lot 9). The street addresses for the Site are 26-22 4th Street and 26-30 4th Street, Queens, New York 11102. The Site is rectangular shaped with 100 feet of frontage along 3rd Street and 147.46 feet of frontage along 4th Street for a total of approximately 25,473 square feet (0.584 acres). Properties in the immediate area around the Site are generally industrial/commercial interspersed with residential homes. Large industrial properties are located along the waterfront/26th Avenue, and a large New York City Housing complex is located south of the Site along 27th Avenue. Adjacent land use includes residential homes to the north, 1-story commercial buildings to the south, auto repair shops, a rehabilitation center and commercial building to the east on the opposite side of 4th Street, and residential homes and industrial buildings to the west on the opposite side of 3rd Street.

After completion of the remedial work, some contamination was left at this site, which is hereafter referred to as "remaining contamination". The Site will be limited to Unrestricted Use, and groundwater use is prohibited. The Site will undergo continued groundwater monitoring until natural attenuation has been achieved. control exposure to remaining contamination to ensure protection of public health and the environment. This Field

Sampling Plan (FSP) outlines the necessary methods to monitor the onsite groundwater. This 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.

2.0 SUMMARY OF REMEDIAL ACTIONS

2.1 Remedial Actions Taken

Implementation of the Track 1 remedy for the Site included the following:

1. Removal of one 2,000-gallon No. 2 fuel oil underground storage tank and collection an analysis of endpoint soil samples to evaluate the performance of the remedy with respect to attainment of Track 1 Unrestricted Use SCOs;
2. Excavation of soil/fill exceeding Track 1 Unrestricted Use SCOs to a minimum depth of 8 feet across the Site to meet Track 1 Unrestricted Use SCOs;
3. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
4. Collection and analysis of endpoint samples from across the Site to evaluate the performance of the remedy with respect to attainment of Track 1 Unrestricted Use SCOs;
5. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
6. Installation of SOE and a dewatering system to allow for excavation/removal of CVOC impacted soil and historic fill material at/below the groundwater table, and discharge of groundwater to the NYC sewer system under a NYCDEP sewer discharge permit;
7. Installation of two down gradient monitoring wells to collect pre and post-dewatering groundwater samples for VOC (EPA Method 8260) analysis to demonstrate dewatering effectively addressed the pre-remedy groundwater conditions;
8. Import of ¾" bluestone for use as backfill below the building slab in compliance with: (1) chemical limitations and other specifications listed in the RAWP, and (2) all Federal, State, and local rules and regulations for handling and transport of material;
9. Import of clean native soil tested to meet Track 1 Unrestricted Use SCOs for use as backfill below the building slab in compliance with: (1) chemical limitations and

other specifications listed in the RAWP, and (2) all Federal, State, and local rules and regulations for handling and transport of material; and

10. A post-construction soil vapor intrusion evaluation will be performed which will consist of the collection and laboratory analysis of indoor air samples. The post-construction soil vapor intrusion evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion within the new building(s);
11. Development and implementation of a Site Management Plan for long term management of remaining contamination at the Site which includes plans for: (1) Institutional Controls, (2) inspections and (3) reporting; and
12. An Environmental Easement recorded against the Site will ensure implementation of the SMP.

Quarterly groundwater samples will be obtained from the two monitoring wells to assess the effectiveness the dewatering during excavation.

2.2 Remedial Action Objectives

The Remedial Action Work Plan identified the following Remedial Action Objectives (RAOs):

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

- Remove the source of ground or surface water contamination.

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

2.3 Remaining Contamination

2.3.1 Soil

Based on the endpoint samples obtained across the Site, this site met the Track 1 Cleanup SCOs.

2.3.2 Groundwater

Groundwater contamination was noted during the remedial investigation at a depth of approximately 4-6 ft below sidewalk grade. PCE was detected within the groundwater samples collected as part of the Remedial Investigation in the central area of the existing building (Lot 9), the northeast corner of the existing building (Lot 9), and in the parking area (Lot 35). Concentrations were low (<10 µg/L) in all samples with the exception of the MW2 groundwater sample located in the south – central area of the parking area (Lot 35) near the property line. The PCE concentration at the MW2 location was 43 µg/L. As part redevelopment, site-wide dewatering was performed to allow for excavation below the water table (to depths as great as 15ft). Groundwater wells were installed to collect pre-and post dewatering groundwater samples. Groundwater monitoring will continue on a annual basis.

2.3.3 Surface Water

There is no surface water located on site. No remedial actions were undertaken for this media.

2.3.4 Soil Vapor

Based upon the remedial investigation results, petroleum-related VOCs such as benzene, toluene, ethylbenzene, and xylenes (BTEX) were low in all sub-slab soil vapor samples ranging from 9.2 micrograms per cubic meter (µg/m^3) to 18.58 µg/m^3. Chlorinated VOCs were reported in all of the sub-slab soil vapor samples with tetrachloroethene ranging from 6.07 µg/m^3 to 1,130 µg/m^3, trichloroethene ranging from 8.32 µg/m^3 to 57.5 µg/m^3, and cis-1,2-dichloroethene ranging from 0.66 µg/m^3 to 201 µg/m^3.

A soil vapor intrusion evaluation must be performed upon a change in use of the property that will result in initial occupancy of a new building. The breadth of this evaluation will be determined based upon discussion with the NYSDEC Project manager and NYSDOH. Based upon these discussion and agency requirements, a work plan may need to be developed that requires that sampling be performed upon a change in use or as deemed necessary by the aforementioned entities. Upon completion of the evaluation, if an action is required, any actions taken or to be taken must be reflected in an updated SMP.

3.0 MONITORING PLAN

3.1 Post-Remediation Groundwater Sampling

3.1.1 Monitoring Well Inspection

A visual inspection of the monitoring wells will be conducted during each sampling event. Unscheduled inspections and/or sampling may take place when an emergency occurs that is deemed likely to affect the operation of the system. Monitoring well components to be monitored include, but are not limited to, the components included in **Table 1**.

Table 1 – Monitoring Requirements and Schedule

ISCO System Component	Monitoring Parameter	Monitoring Schedule
Monitoring Wells	Condition, PID Screen, Depth to water, depth to bottom.	Bi-Annual (twice per year)

A complete list of components to be inspected is provided in the Inspection Checklist, provided in the SMP as Attachment D - Site Management Forms. If the monitoring wells or injections wells have been damaged, lost, or require redevelopment, maintenance and repair, as per the Operation and Maintenance Plan, is required immediately.

3.1.2 Post-Remediation Media Monitoring and Sampling

Groundwater samples will be collected from MW1 and MW2 approximately on a biannual (twice per year) basis to confirm the performance of the remedy. Sampling locations, required analytical parameters and schedule are provided in **Table 2** – Groundwater Sampling Requirements and Schedule below. Modification to the frequency or sampling requirements will require approval from the NYSDEC.

Table 2 – Groundwater Sampling Requirements and Schedule

Sampling Location	Analytical Parameters	Schedule
	VOCs (EPA Method 8260C)	
MW1	X	Bi-Annual
MW2	X	Bi-Annual
Container	(3) 40mL VOAs preserved with HCL	

The results of the sampling events will be indicated in Periodic Review Reports (PRR). As part of the PRR submittal, a graph showing the change in VOCs concentrations, will be attached.

Sampling will be conducted in accordance with NYSDEC Draft DER-10 Technical Guidance for Site Investigation and Remediation, dated May 2010, and Sampling Guidelines and Protocols, dated March 1991. Groundwater wells will be gauged with a water level meter to record a depth to groundwater reading (1/100 foot), and if necessary, an interface meter to determine the thickness of LNAPL or DNAPL. Modification to the sampling requirements will require approval from NYSDEC.

All sampling activities will be recorded in a field book and associated sampling log as provided in **Attachment H** - Site Management Forms. Other observations (e.g., groundwater monitoring well integrity, etc.) will be noted on the sampling log. The sampling log will serve as the inspection form for the monitoring network.

Groundwater Sampling Protocol

Groundwater samples will be collected from all wells (MW1 and MW2). Sample procurement will be achieved through the use of dedicated polyethylene tubing, a stainless steel check valve and a peristaltic pump.

All groundwater sampling activities will be recorded in the project dedicated field book. This will include a description of:

- Date and time of sample collection
- Sample location
- Purging time, duration and volume;
- Sample appearance
- Analytical methodology:

Groundwater samples will be collected using a check valve, peristaltic pump and dedicated polyethylene tubing in accordance with standard low-flow sampling procedures as follows:

- Record pump make & model on sampling form.

- Wear appropriate health and safety equipment as outlined in the Health and Safety Plan
- Inspect each well for any damage or evidence of tampering and note condition in field logbook.
- Remove the well cap.
- Lay out plastic sheeting and place the monitoring, purging and sampling equipment on the sheeting.
- To avoid cross-contamination, do not let any downhole equipment touch the ground.
- Measure well headspace with a PID or FID and record the reading in the field logbook.
- A synoptic water level measurement round should be performed (in the shortest possible time) before any purging and sampling activities begin. Measure and record the depth to water using a water level meter or interface probe to the nearest 0.01 ft. Record the measurement in the field logbook. Do not measure the depth to the bottom of the well at this time (to avoid disturbing any sediment that may have accumulated). Obtain depth to bottom information from installation information in the field logbook or soil boring logs.
- Collect samples in order from wells with lowest contaminant concentration to highest concentration.
- Connect the polyethylene tubing to the peristaltic pump and lower the tubing into the well to approximately the middle of the screen. Tubing should be a minimum of 2 feet above the bottom of the well as this may cause mobilization of any sediment present in the bottom of the well.
- Start the pump at its lowest speed setting and slowly increase the speed until discharge occurs. Check water level. Adjust pump speed until there is little or no water level drawdown (less than 0.3 feet). If the minimal drawdown that can be achieved exceeds 0.3 feet but remains stable, continue purging until indicator field parameters stabilize.
- There should be at least 1 foot of water over the end of the tubing so there is no risk of entrapment of air in the sample. Pumping rates should be reduced to the

minimum capabilities of the pump, if needed, to avoid purging the well dry. However, if the recharge rate of the well is very low and the well is purged dry, then wait until the well has recharged to a sufficient level and collect the appropriate volume of sample.

- During well purging, monitor indicator field parameters (turbidity, temperature, specific conductance and pH) every three to five minutes (or less frequently, if appropriate). Sample will not be collected until the turbidity is less than 50 NTUs. Note: during the early phase of purging emphasis should be put on minimizing and stabilizing pumping stress, and recording those adjustments. Purging is considered complete and sampling may begin when all the above indicator field parameters have stabilized. Stabilization is considered to be achieved when three consecutive readings, taken at three (3) to five (5) minute intervals, are within the following limits:
    - specific conductance (3%),
    - temperature (3%),
    - pH (± 0.1 unit)
- VOC samples should be collected directly into pre-preserved sample containers. Fill all sample containers by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. Fill each container with sample to just overflowing so that no air bubbles are entrapped inside. Cap each bottle as it is filled.
- Label the samples, and record them on the chain of custody form. Place immediately into a cooler for shipment and maintain at 4oC.
- Remove the tubing from the well. The polyethylene tubing must either be dedicated to each well or discarded. If dedicated the tubing should be placed in a large plastic garbage bag, sealed, and labeled with the appropriate well identification number.
- Close and lock the well.
- Decontaminate pump either by changing the surgical pump tubing between wells or as follows:

    1. Flush the equipment/pump with potable water.

2. Flush with non-phosphate detergent solution. If the solution is recycled, the solution must be changed periodically.
3. Flush with potable or distilled/deionized water to remove all of the detergent solution. If the water is recycled, the water must be changed periodically.
4. Flush with isopropyl alcohol (pesticide grade). If equipment blank data from the previous sampling event show that the level of contaminants is insignificant, then this step may be skipped.
5. Flush with distilled/deionized water. The final water rinse must not be recycled.

Samples will be collected in pre-cleaned laboratory supplied glassware, stored in a cooler with ice and submitted to a New York State ELAP certified environmental laboratory. Groundwater samples from monitoring well locations will be submitted for analysis of VOCs by EPA Method 8260 and SVOCs by EPA Method 8270.

All monitoring wells will be surveyed to determine relative casing elevation to the nearest 0.01 ft and horizontal position to the nearest 0.1ft.

Table 3 – Monitoring Well Construction Details

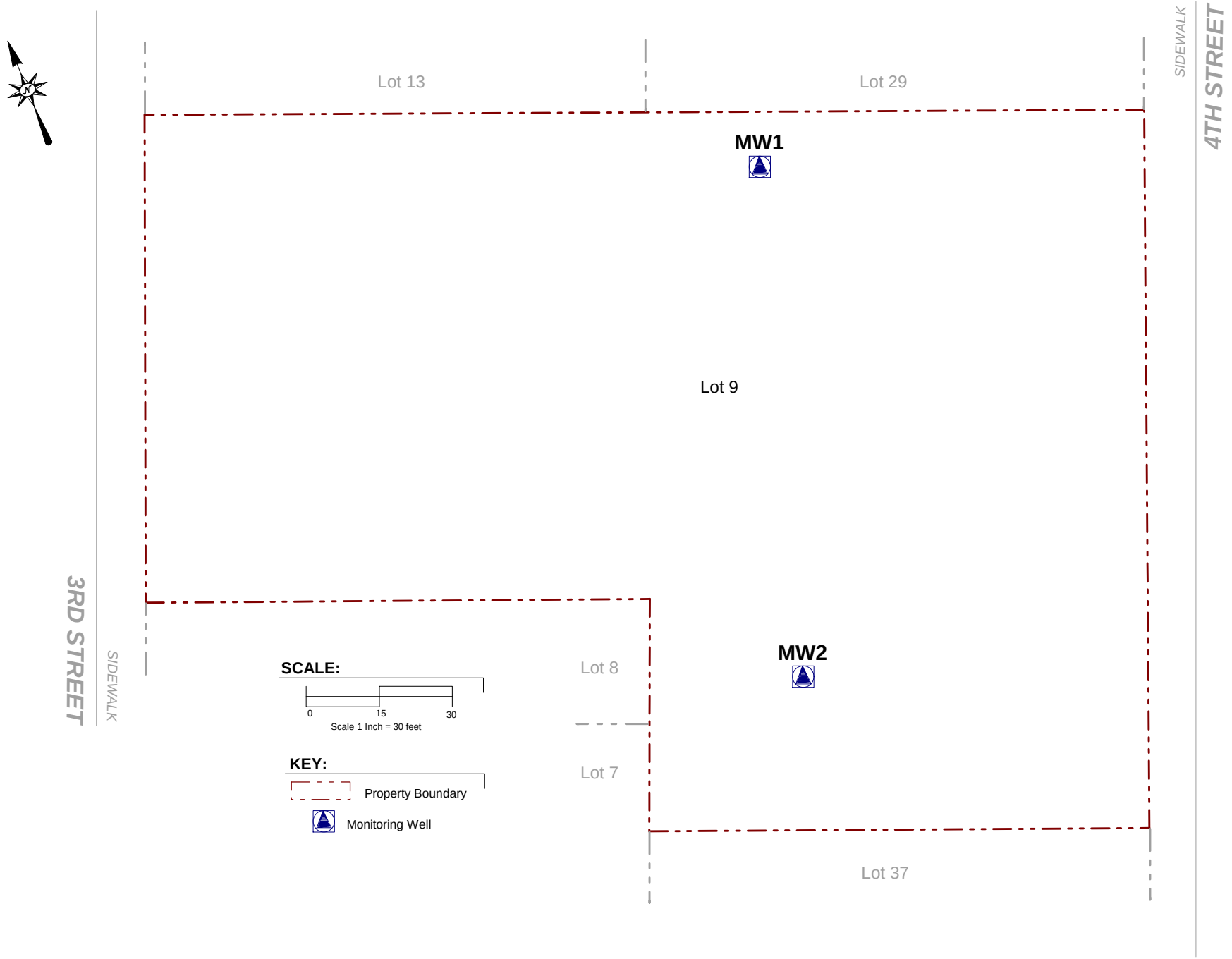
Monitoring Well ID	**Well Location**	**Well Diameter (inches)**	Elevation (above mean sea level)		
			Slab	Screen Top	Screen Bottom
MW1	North end of east half of Site	2	15.39’	5.39’	0.39’
MW2	South end of east half of Site	2	15.39’	5.39’	0.39’

If biofouling or silt accumulation occurs in the on-site and/or off-site monitoring wells, the wells will be physically agitated/surged and redeveloped. Additionally, monitoring wells will be properly decommissioned and replaced, if an event renders the wells unusable. Repairs and/or replacement of wells in the monitoring well network will be performed based on assessments of structural integrity and overall performance.

The NYSDEC 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. 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. The sampling frequency may only be modified with the approval of the NYSDEC.

FIGURES



AMC Engineering
1836 42nd Street
Astoria, NY 11105

Figure No.
1

Site Name: FORMER ANDOR MEDICAL SYSTEMS
Site Address: 26-22 4TH STREET, QUEENS, NY
Drawing Title: MONITORING WELL LOCATIONS

APPENDIX A

Sample Chain of Custody

Cooler: Yes ☐ No ☐
Coolant: IPK ☐ ICE ☐ No ☐

Temp ° C Pg of

NY/NJ CHAIN OF CUSTODY RECORD

PHOENIX Environmental Laboratories, Inc.

587 East Middle Turnpike, P.O. Box 370, Manchester, CT 06040
Email: info@phoenixlabs.com Fax (860) 645-0823
Client Services (860) 645-8726

Contact Options:
☐ Fax: ____________
☐ Phone: ____________
☐ Email: ____________

Customer: ____________
Address: ____________
____

Project: ____________
Report to: ____________
Invoice to: ____________
QUOTE # : ____________

Project P.O: ____________

Client Sample - Information - Identification

Sampler's Signature ____________ Date: ____________

Matrix Code:
DW=Drinking Water **GW**=Ground Water **SW**=Surface Water **WW**=Waste Water
RW=Raw Water **SE=**Sediment **SL**=Sludge **S**=Soil **SD**=Solid **W**=Wipe
OIL=Oil **B**=Bulk **L**=Liquid

Analysis Request

PHOENIX USE ONLY SAMPLE #	Customer Sample Identification	Sample Matrix	Date Sampled	Time Sampled											GL Amber 8 oz. w/H3PO4	Soil VOA Vials [ ] methanol [ ] H2O	GL Soil container ( ) oz	GL Soil container ( ) oz	40 ml VOA Vial [ ] As is [ ] HCl	GL Amber 1000ml [ ] As is [ ] H2SO4	PL As is [ ] 250ml [ ] 500ml [ ] 1000ml	PL H2SO4 [ ] 250ml [ ] 500ml	PL NAOH 250ml	PL HNO3 250ml	Bacteria Bottle w/thio	Bacteria Bottle as is

Relinquished by:	Accepted by:	Date:	Time:

Comments, Special Requirements or Regulations:

Turnaround:
☐ 1 Day*
☐ 2 Days*
☐ 3 Days*
☐ 5 Days
☐ 10 Days
☐ Other

*** SURCHARGE APPLIES**

NJ
☐ Res. Criteria
☐ Non-Res. Criteria
☐ Impact to GW Soil Cleanup Criteria
☐ Impact to GW soil screen Criteria
☐ GW Criteria

What State were samples collected? ____________

NY
☐ TOGS GW
☐ CP-51 SOIL
☐ 375SCO Unrestricted Soil
☐ 375SCO Residential Soil
☐ 375SCO Residential Restricted Soil
☐ 375SCO Commercial Soil
☐ 375SCO Industrial Soil
☐ Subpart 5 DW

Data Format
☐ Phoenix Std Report
☐ Excel
☐ PDF
☐ GIS/Key
☐ EQuIS
☐ NJ Hazsite EDD
☐ NY EZ EDD (ASP)
☐ Other ____________

Data Package
☐ NJ Reduced Deliv. *
☐ NY Enhanced (ASP B) *
☐ Other

APPENDIX D

Community Air Monitoring Plan

COMMUNITY AIR MONITORING PLAN

FORMER ANDOR MEDICAL SYSTEMS

26-22 4th STREET
ASTORIA, NEW YORK

NOVEMBER 2021

FORMER ANDOR MEDICAL SYTEMS

COMMUNITY AIR MONITORING PLAN
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Appendix A Action Limit Report

1.0 INTRODUCTION

This Community Air Monitoring Plan (CAMP) has been prepared for use during activities that disturb the engineered composite cover installed across the Site and during all excavation and other soil disturbing activities. The CAMP provides measures for protection for the on-site workers and building occupants and downwind community (i.e., off-site receptors including residences, businesses, and on-site workers not directly involved in the investigation activities) from potential airborne contaminant releases resulting from investigative activities at the site.

Compliance with this CAMP is required during all activities associated with drilling and sampling activities that have the potential to generate airborne particulate matter and volatile organic compounds (VOCs). These activities include drilling and soil and groundwater sampling. This CAMP has been prepared to ensure that investigation activities do not adversely affect passersby, residents, or workers in the area immediately surrounding the Site and to preclude or minimize airborne migration of investigation-related contaminants to off-site areas.

1.1 Regulatory Requirements

This CAMP was established in accordance with the following requirements:

- New York State Department of Health's (NYSDOH) Generic Community Air Monitoring Plan as presented in DER-10 Technical Guidance for Site Investigation and Remediation (NYSDEC May 3, 2010). This guidance specifies that a community air-monitoring program shall be implemented to protect the surrounding community and to confirm that the work does not spread contamination off-site through the air;

- New York State Department of Environmental Conservation (NYSDEC) Technical and Guidance Memorandum (TAGM) #4031 - Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites: This guidance provides a basis for developing and implementing a fugitive dust suppression and particulate monitoring program as an element of a hazardous waste site's health and safety program.

2.0 AIR MONITORING

Volatile organic compounds (VOCs) are the constituents of concern at the Site. The appropriate method to monitor air for these constituents during remediation activities is through real-time VOC and air particulate (dust) monitoring.

2.1 Meteorological Data

At a minimum, wind direction will be evaluated at the start of each workday, noon of each workday, and the end of each workday. These readings will be utilized to position the monitoring equipment in appropriate upwind and downwind locations.

2.2 Community Air Monitoring Requirements

To establish ambient air background concentrations, air will be monitored at several locations around the site perimeter before activities begin. These points will be monitored periodically in series during the site work. When the drilling area is within 20 feet of potentially exposed populations or occupied structures, the perimeter monitoring points will be located to represent the nearest potentially exposed individuals at the downwind location.

Fugitive respirable dust will be monitored using a MiniRam Model PDM-3 aerosol monitor (or equivalent). Air will be monitored for VOCs with a portable Ionscience 3000 photoionization detector (PID), or equivalent. All air monitoring data will be documented in a site log book by the designated site safety officer. The site safety officer or delegate must ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. All instruments will be zeroed daily and checked for accuracy. A daily log will be kept. If additional monitoring is required, the protocols will be developed and appended to this plan

3.0 VOC MONITORING, RESPONSE LEVELS, AND ACTIONS

Volatile organic compounds (VOCs) will be monitored within the work area and at the downwind perimeter of the immediate work area (i.e., the exclusion zone) on a continuous basis or as otherwise specified. Upwind concentrations should be measured at the start of each workday and periodically thereafter to establish background conditions. The monitoring work should be performed using equipment appropriate to measure the types of contaminants known or suspected to be present.

The equipment should be calibrated at least daily for the contaminant(s) of concern or for an appropriate surrogate. The equipment should be capable of calculating 15-minute running average concentrations, which will be compared to the levels specified below.

- If the ambient air concentration of total organic vapors at the downwind perimeter of the work area or exclusion zone exceeds 5 parts per million (ppm) above background for the 15-minute average, work activities must be temporarily halted and monitoring continued. If the total organic vapor level readily decreases (per instantaneous readings) below 5 ppm over background, work activities can resume with continued monitoring.

- If total organic vapor levels at the downwind perimeter of the work area or exclusion zone persist at levels in excess of 5 ppm over background but less than 25 ppm, work activities must be halted, the source of vapors identified, corrective actions taken to abate emissions, and monitoring continued. After these steps, work activities can resume provided that the total organic vapor level 200 feet downwind of the exclusion zone or half the distance to the nearest potential receptor or residential/commercial structure, whichever is less - but in no case less than 20 feet, is below 5 ppm over background for the 15-minute average.

- If the organic vapor level is above 25 ppm at the perimeter of the work area, activities must be shutdown. All 15-minute readings must be recorded and be available for State (DEC and DOH) personnel to review. Instantaneous readings, if any, used for decision purposes should also be recorded.

All readings will be recorded and made available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report, as shown in Appendix A, will be completed.

3.1 Potential Corrective Measures and VOC Suppression Techniques

If the 15-minute integrated VOC level at the downwind location persists at a concentration that exceeds the upwind level by more than 5 ppm but less than 25 ppm during remediation activities, then vapor suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive organic vapors:

- Collection of purge water in covered containers;
- storage of excess sample and drill cuttings in drums or covering with plastic

4.0 PARTICULATE MONITORING

Air monitoring for particulates (i.e., dust) will be performed continuously during drilling activities using both air monitoring equipment and visual observation at upwind and downwind locations. Monitoring equipment capable of measuring particulate matter smaller than 10 microns (PM_{10}) and capable of integrating (averaging) over periods of 15 minutes or less will be set up at upwind (i.e., background) and downwind locations, at heights approximately four to five feet above land surface (i.e., the breathing zone). Monitoring equipment will be MIE Data Ram monitors, or equivalent. The audible alarm on the particulate monitoring device will be set at 90 micrograms per cubic meter ($\mu g/m_3$). This setting will allow proactive evaluation of worksite conditions prior to reaching the action level of 100 $\mu g/m^3$ above background. The monitors will be calibrated at least once per day prior to work activities and recalibrated as needed thereafter. In addition, fugitive dust migration will be visually assessed during all intrusive work activities.

The following summarizes particulate action levels and the appropriate responses:

- If the downwind PM-10 particulate level is 100 $\mu g/m^3$ greater than background (upwind perimeter) for the 15-minute period, or if airborne dust is observed leaving the work area, then dust suppression techniques must be employed. Work may continue with dust suppression techniques provided that downwind PM-10 particulate levels do not exceed 150 $\mu g/m^3$ above the upwind level and provided that no visible dust is migrating from the work area.

- If, after implementation of dust suppression techniques, downwind PM-10 particulate levels are greater than 150 $\mu g/m^3$ above the upwind level, work must be stopped and an evaluation of activities initiated. Work can resume provided that dust suppression measures (as described in Section 2.3.1 below) and other controls are successful in reducing the downwind PM-10 particulate concentration to within 150 $\mu g/m^3$ of the upwind level and in preventing visible dust migration.

All readings will be recorded and be available for NYSDEC and NYSDOH personnel to review. If an exceedance of the Action Limits occurs, an Action Limit Report as shown in **Appendix A** will be completed.

4.1 Potential Particulate Suppression Techniques

If the integrated particulate level at the downwind location exceeds the upwind level by more than 100 $\mu g/m^3$ at any time during drilling activities, then dust suppression techniques will be employed. The following techniques, or others, may be employed to mitigate the generation and migration of fugitive dusts:

- Placement of drill cuttings in drums or covering stockpiles with plastic;
- Misting of the drilling area with a fine water spray from a hand-held spray bottle

Work may continue with dust suppression techniques provided that downwind PM_{10} levels are not more than 150 $\mu g/m^3$ greater than the upwind levels.

There may also be situations where the dust is generated by drilling activities and migrates to downwind locations, but is not detected by the monitoring equipment at or above the action level. Therefore, if dust is observed leaving the working area, dust suppression techniques such as those listed above will be employed.

If dust suppression techniques do not lower particulates to below 150 $\mu g/m^3$, or visible dust persists, work will be suspended until appropriate corrective measures are identified and implemented to remedy the situation.

All air monitoring readings will be recorded in the field logbook and will be available for the NYSDEC and NYSDOH personnel to review.

5.0 DATA QUALITY ASSURANCE

5.1 Calibration

Instrument calibration shall be documented on instrument calibration and maintenance sheets or in the designated field logbook. All instruments shall be calibrated as required by the manufacturer. Calibration checks may be used during the day to confirm instrument accuracy. Duplicate readings may be taken to confirm individual instrument response.

5.2 Operations

All instruments shall be operated in accordance with the manufacturer's specifications. Manufacturers' literature, including an operations manual for each piece of monitoring equipment will be maintained on-site by the SSO for reference.

5.3 Data Review

The SSO will interpret all monitoring data based the established criteria and his/her professional judgment. The SSO shall review the data with the PM to evaluate the potential for worker exposure, upgrades/downgrades in level of protection, comparison to direct reading instrumentation and changes in the integrated monitoring strategy.

Monitoring and sampling data, along with all sample documentation will be periodically reviewed by the PM.

6.0 RECORDS AND REPORTING

All air readings must be recorded on daily air monitoring log sheets and made available for review by personnel from NYSDEC and NYSDOH.

1808 MIDDLE COUNTRY ROAD
RIDGE, NY 11961
PHONE 631.504.6000
FAX 631.924.2870

Daily Air Monitoring Log

Project Name: Former Andor Medical Systems Date: _____

Project Location: 26-22 4th Street, Brooklyn, NY BCP Site No. C241234

Temperature:_____ Wind Speed:_____ Wind Direction:_____

Background Data: Upwind - PID _____ppm Dust Meter 1 - _____mg/m^3

Downwind - PID _____ppm Dust Meter 2 - _____mg/m^3

Time	Work Zone		Upwind		Downwind	
	PID - ppm	Dust - mg/m^3	PID - ppm	Dust - mg/m^3	PID - ppm	Dust - mg/m^3

Activities Performed:

APPENDIX E
Health and Safety Plan

FORMER ANDOR MEDICAL SYSTEMS

26-22 4th STREET
ASTORIA, NEW YORK
Block 910, Lot 9

CONSTRUCTION HEALTH AND SAFETY PLAN

NOVEMBER 2021

Prepared By:

AMC Engineering, PLLC
18-36 42nd Street,
Astoria, NY 11105
(516) 545-0474

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STATEMENT OF COMMITMENT

This Construction Health and Safety Plan (CHASP) has been prepared to ensure that workers are not exposed to risks from hazardous materials during the Remedial Actions at the Site.

This CHASP, which applies to persons present at the site actually or potentially exposed to hazardous materials, describes emergency response procedures for actual and potential chemical hazards. This CHASP is also intended to inform and guide personnel entering the work area or exclusion zone. Persons are to acknowledge that they understand the potential hazards and the contents of this Health and Safety policy by signing off on receipt of their individual copy of the document. Contractors and suppliers are retained as independent contractors and are responsible for ensuring the health and safety of their own employees.

1.0 INTRODUCTION AND SITE ENTRY REQUIREMENTS

This document describes the health and safety guidelines developed by AMC Engineering, PLLC (AMC) for the planned Remedial Action at the Site to protect on-site personnel, visitors, and the public from physical harm and exposure to hazardous materials or wastes during remedial activities. In accordance with the Occupational Safety and Health Administration (OSHA) 29 CFR Part 1910.120 Hazardous Waste Operations and Emergency Response Final rule, this CHASP, including the attachments, addresses safety and health hazards related to excavation, loading and other soil disturbance activities and is based on the best information available. The CHASP may be revised by AMC at the request of the owner and/or a regulatory agency upon receipt of new information regarding site conditions. Changes will be documented by written amendments signed by AMC's project manager, site safety officer and/or the AMC health and safety consultant.

Work performed under the remedial action will not involve confined space entry since the excavations will be large and sloped back in accordance with NYCDOB shoring requirements and will not have a limited or restricted means for entry or exit.

1.1 Training Requirements

Personnel entering the exclusion zone or decontamination zone are required to be certified in health and safety practices for hazardous waste site operations as specified in the Federal OSHA Regulations CFR 1910.120e (revised 3/6/90).

Paragraph (e - 3) of the above referenced regulations requires that all on-site management personnel directly responsible for or who supervise employees engaged in hazardous waste operations, must initially receive 8 hours of supervisor training related to managing hazardous waste work.

Paragraph (e - 8) of the above referenced regulations requires that workers and supervisors receive 8 hours of refresher training annually on the items specified in Paragraph (e-1) and/or (e-3).

Additionally, all on-site personnel must receive adequate site-specific training in the form of an on-site Health and Safety briefing prior to participating in field work with emphasis on the following:

- Protection of the adjacent community from hazardous vapors and / or dust which may be released during intrusive activities.
- Identification of chemicals known or suspected to be present on-site and the health effects and hazards of those substances.
- The need for vigilance in personnel protection, and the importance of attention to proper use, fit and care of personnel protective equipment.
- Decontamination procedures.
- Site control including work zones, access and security.
- Hazards and protection against heat or cold.
- The proper observance of daily health and safety practices, such as entry and exit of work zones and site. Proper hygiene during lunch, break, etc.

- Emergency procedures to be followed in case of fire, explosion and sudden release of hazardous gases.

Health and Safety meetings will be conducted on a daily basis and will cover protective clothing and other equipment to be used that day, potential and chemical and physical hazards, emergency procedures, and conditions and activities from the previous day.

1.2 Medical Monitoring Requirements

Field personnel and visitors entering the exclusion zone or decontamination zone must have completed appropriate medical monitoring required under OSHA 29 CFR 1910.120(f) if respirators or other breathing related PPE is needed. Medical monitoring enables a physician to monitor each employee's health, physical condition, and his fitness to wear respiratory protective equipment and carry out on-site tasks.

1.3 Site Safety Plan Acceptance, Acknowledgment and Amendments

The project superintendent and the site safety officer are responsible for informing personnel (AMC employees and/or owner or owners representatives) entering the work area of the contents of this plan and ensuring that each person signs the safety plan acknowledging the on-site hazards and procedures required to minimize exposure to adverse effects of these hazards. A copy of the Acknowledgement Form is included in **Appendix A**.

Site conditions may warrant an amendment to the CHASP. Amendments to the CHASP are acknowledged by completing forms included in **Appendix B**.

1.4 Key Personnel - Roles and Responsibilities

Personnel responsible for implementing this Health and Safety Plan are:

Name	Title	Address	Contact Numbers
Mr. Ariel Czemerinski	Project Manager	18-36 42nd Street Astoria, NY 11105	(516) 545-0474
Ms. Josephine Chen	Health & Safety Manager	18-36 42nd Street Astoria, NY 11105	(516) 545-0474
Mr. Andrew Sung	Site Safety Officer	18-36 42nd Street Astoria, NY 11105	(516) 545-0474

The project manager is responsible for overall project administration and, with guidance from the site safety officer, for supervising the implementation of this CHASP. The site safety officer will conduct daily (tail gate or tool box) safety meetings at the project site and oversee daily safety issues. Each subcontractor and supplier (defined as an OSHA employer) is also responsible for the health and safety of its employees. If there is any dispute about health and safety or project activities, on-site personnel will attempt to resolve the issue. If the issue cannot be resolved at the site, then the project manager will be consulted.

The site safety officer is also responsible for coordinating health and safety activities related to hazardous material exposure on-site. The site safety officer is responsible for the following:

1. Educating personnel about information in this CHASP and other safety requirements to be observed during site operations, including, but not limited to, decontamination procedures, designation of work zones and levels of protection, air monitoring, fit testing, and emergency procedures dealing with fire and first aid.

2. Coordinating site safety decisions with the project manager.

3. Designating exclusion, decontamination and support zones on a daily basis.

4. Monitoring the condition and status of known on-site hazards and maintaining and implementing the air quality monitoring program specified in this CHASP.

5. Maintaining the work zone entry/exit log and site entry/exit log.

6. Maintaining records of safety problems, corrective measures and documentation of chemical exposures or physical injuries (the site safety officer will document these conditions in a bound notebook and maintain a copy of the notebook on-site).

The person who observes safety concerns and potential hazards that have not been addressed in the daily safety meetings should immediately report their observations/concerns to the site safety officer or appropriate key personnel.

2.0 SITE BACKGROUND AND SCOPE OF WORK

The Site is located in the Astoria neighborhood of Queens County and is comprised of a two tax lots (Block 910, Lots 9 & 35) totaling 25,473 square feet (0.584 acres). The street addresses for the Site are 26-22 4th Street and 26-30 4th Street, Queens, New York 11102. The Site is rectangular shaped with 100 feet of frontage along 3rd Street and 147.46 feet of frontage along 4th Street.

2.1 Previous Investigations

Investigations performed at the Site include the following:

- Phase I Environmental Site Assessment (AES, August, 2018)
- Focused Phase II Subsurface Site Investigation (AES, October, 2018)
- Remedial Investigation Report (EBC, March 2020)

Phase I Environmental Site Assessment (AES)

In August 2018, Associated Environmental Services (AES) performed a due diligence Phase I Environmental Site Assessment at the 26-22 4th Street property. AES reported the following Recognized Environmental Conditions (RECs) in connection with the Property:

- The Property was occupied by Andor Medical Systems around 1991 which may have used chemicals related to medical imaging.
- According to NYCDOB, Department of Finance Building Classification for Lot 35 is GARAGE/GAS STATION.
- A data gap exists for the tenants of the Property from 1961 to 1983.
- A 2,000-gallon fuel oil underground storage tank (UST) is present at the Property. According to the records provided, the UST had recently passed a tightness test. However, the UST is registered as being installed in 1961. Due to the age and known useful life of single wall steel USTs (approximately 30 years) and the fact the top has been excavated, subsurface testing is recommended.

Focused Subsurface Site Investigation (AES, October 2018)

The subsurface investigation performed by AES was performed as part of a due diligence environmental assessment to further investigate the property and recognized environmental conditions that were identified in the Phase I ESA report. The subsurface investigation included a geophysical survey, and the advancement of 9 soil borings and the collection of 3 groundwater samples.

The results of soil analysis reported elevated levels of volatile and semi-volatile organic compounds (VOCs/SVOCs), pesticides, PCBs and metals. The chlorinated solvents cis-1,2-dichloroethene (cis-DCE), tetrachloroethene (PCE) and trichloroethene (TCE) were reported above Protection of Groundwater Soil Cleanup Objectives (SCOs) in one or more samples. Multiple SVOCs were reported in 4 of 6 soil samples above Restricted Residential and/or Restricted Commercial SCOs. The metals barium and lead were also reported above Restricted Commercial SCOs. The pesticide 4,4'-DDE, the PCB PCB-1254, and the metal mercury were all reported above Unrestricted Use SCOs.

The chlorinated VOCs, PCE, TCE and cis-DCE were all reported above Groundwater Quality Standards in all three groundwater samples collected by AES.

Remedial Investigation Report (EBC, March 2020)

A Remedial Investigation was completed at the Site from December 10, 2019, through December 30, 2019, and documented in a Remedial Investigation Report dated March 2020. The goals of the Remedial Investigation were to define the nature and extent of contamination in soil, groundwater and any other impacted media; to identify the source(s) of the contamination; to assess the impact of the contamination on public health and/or the environment; and to provide information to support the development of a Remedial Work Plan to address the contamination.

Activities completed under the RI:

- The installation of ten soil borings to collect twenty soil samples for laboratory analysis of volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, PCBs, metals and emerging contaminants;
- The installation of six groundwater monitoring wells and the collection of six groundwater samples for laboratory analysis of VOCs, SVOCs, pesticides, PCBs, and total and dissolved metals and emerging contaminants;
- The collection of analysis of six sub-slab soil gas samples and two soil vapor samples for VOCs from eight sampling locations.

Soil - Several VOCs were detected in the subsurface that exceeded their applicable Unrestricted Use Soil Cleanup Objectives (UUSCOs) and Protection of Groundwater Soil Cleanup Objectives (PGWSCOs); tetrachloroethene was detected up to 5.6 parts per million (ppm) (UUSCO and PGWSCO are 1.3 ppm), trichloroethene was detected up to 1.4 ppm (UUSCO and PGWSCO are 0.47ppm), cis-1,2-dichloroethene was detected up to 0.32 ppm (UUSCO and PGWSCO are 0.25ppm), and acetone up to 0.79 ppm (UUSCO and PGWSCO are 0.05 ppm).

Several SVOCs detected in the subsurface exceeded their respective UUSCOs: benzo(a)anthracene was detected up to 9.4 ppm (UUSCO is 1 ppm); benzo(a)pyrene up to 8.9 ppm (UUSCO is 1 ppm); benzo(b)fluoranthene up to 7.5 ppm (UUSCO is 1 ppm); chrysene up to 9.6 ppm (UUSCO is 1 ppm); indeno(1,2,3-cd)pyrene up to 6.0 ppm (UUSCO is 0.5 ppm); and benzo(k)fluoranthene up to 4.3 ppm (UUSCO is 0.8 ppm). Several metals exceeded their respective UUSCOs, including barium up to 407 ppm (UUSCO is 350 ppm), arsenic up to 14.2 ppm (UUSCO is 13 ppm), mercury up to 2.26 ppm (UUSCO is 0.18 ppm), lead up to 8,430 ppm (UUSCO is 63 ppm and PGWSCO is 450 ppm).

Based on the sampling results, only VOCs and lead required comparison to PGWSCO. Also, based on the sampling results, there is no indication that these contaminants have migrated off-site in soil.

Groundwater - Several VOCs were detected in on-site groundwater at levels exceeding their respective ambient water quality standards (AWQSs); tetrachloroethene up to 43 parts per billion (ppb) (AWQS is 5 ppb), trichloroethene up to 10 ppb (AWQS is 5 ppb) and cis-1,2-dichloroethene up to 15 ppb (GWQS is 5 ppb). Also, metals such as lead was detected up to 84 ppb (AWQS is 25 ppb). Based on the sampling results, there is no indication that these contaminants have migrated offsite in groundwater.

Sub-Slab Soil Vapor - Petroleum-related VOCs such as benzene, toluene, ethylbenzene, and xylenes (BTEX) were low in all sub-slab soil vapor samples ranging from 9.2 micrograms per cubic meter ($\mu g/m^3$) to 18.58 $\mu g/m^3$. Chlorinated VOCs were reported in all of the sub-slab soil

vapor samples with tetrachloroethene ranging from 6.07 µg/m^3 to 1,130 µg/m^3, trichloroethene ranging from µg/m^3 to 57.5 µg/m^3, and cis-1,2-dichloroethene ranging from 0.66 µg/m^3 to 201 µg/m^3. Based on the sampling results, there is an indication that these contaminants may have migrated off-site.

Soil Vapor - BTEX were low in all soil vapor samples ranging from 5.6 µg/m^3 to 5.97 µg/m^3.C hlorinated VOCs were reported in all of the soil vapor samples with tetrachloroethene ranging 9.9 µg/m^3 to 247 µg/m^3, trichloroethene was detected up to 32.1 µg/m^3, and cis-1,2-dichloroethene was detected up to 18.7 µg/m^3. Based on the sampling results, there is an indication that these contaminants may have migrated off-site.

2.2 Description of Remedial Action

Site activities included within the Remedial Action that are included within the scope of this CHASP include the following:

A Remedial Action Work Plan (RAWP) prepared by AMC in May 2020, was approved by the NYSDEC on August 14, 2020. The remedy recommended for the Site within the RAWP was a Conditional Track 1 alternative which was to consist of excavation across the Site to depths varying between 0 to 4 ft below the existing building slab and parking area and up to depths as great as 10 ft (Lot 9 and Lot 35) to remove historic fill material with parameters above Unrestricted Use SCOs, and up to 6 feet to remove all CVOC impacted with parameters above Protection of Groundwater SCOs and Unrestricted Use SCOs, and removal of groundwater contamination through dewatering activities during excavation.

Implementation of the remedy for the Track 1 portion of the Site included the following:

1. Removal of one 2,000-gallon No. 2 fuel oil underground storage tank and collection an analysis of endpoint soil samples to evaluate the performance of the remedy with respect to attainment of Track 1 Unrestricted Use SCOs;
2. Excavation of soil/fill exceeding Track 1 Unrestricted Use SCOs to a minimum depth of 8 feet across the Site to meet Track 1 Unrestricted Use SCOs;
3. Screening for indications of contamination (by visual means, odor, and monitoring with PID) of all excavated soil during any intrusive Site work;
4. Collection and analysis of endpoint samples from across the Site to evaluate the performance of the remedy with respect to attainment of Track 1 Unrestricted Use SCOs;
5. Appropriate off-Site disposal of all material removed from the Site in accordance with all Federal, State and local rules and regulations for handling, transport, and disposal;
6. Installation of SOE and a dewatering system to allow for excavation/removal of CVOC impacted soil and historic fill material at/below the groundwater table, and discharge of groundwater to the NYC sewer system under a NYCDEP sewer discharge permit;
7. Installation of two down gradient monitoring wells to collect pre and post-dewatering groundwater samples for VOC (EPA Method 8260) analysis to demonstrate dewatering effectively addressed the pre-remedy groundwater conditions;
8. Import of ¾" bluestone for use as backfill below the building slab in compliance with: (1) chemical limitations and other specifications listed in the RAWP, and (2) all Federal, State, and local rules and regulations for handling and transport of material;

9. Import of clean native soil tested to meet Track 1 Unrestricted Use SCOs for use as backfill below the building slab in compliance with: (1) chemical limitations and other specifications listed in the RAWP, and (2) all Federal, State, and local rules and regulations for handling and transport of material; and
10. A post-construction soil vapor intrusion evaluation will be performed which will consist of the collection and laboratory analysis of indoor air samples. The post-construction soil vapor intrusion evaluation will include a provision for implementing actions recommended to address exposures related to soil vapor intrusion within the new building(s);
11. Development and implementation of a Site Management Plan for long term management of remaining contamination at the Site which includes plans for: (1) Institutional Controls, (2) inspections and (3) reporting; and
12. An Environmental Easement recorded against the Site will ensure implementation of the SMP.

3.0 HAZARD ASSESSMENT

This section identifies the hazards associated with the proposed scope of work, general physical hazards that can be expected at most sites; and presents a summary of documented or potential chemical hazards at the site. Every effort must be made to reduce or eliminate these hazards. Those that cannot be eliminated must be guarded against using engineering controls and/or personal protective equipment.

3.1 Physical Hazards

3.1.1 Tripping Hazards

An area of risk associated with on-site activities are presented by uneven ground, concrete, curbstones or equipment which may be present at the site thereby creating a potential tripping hazard. During intrusive work, care should be taken to mark or remove any obstacles within the exclusion zone.

3.1.2 Climbing Hazards

During site activities, workers may have to work on excavating equipment by climbing. The excavating contractor will conform with any applicable NIOSH and OSHA requirements or climbing activities.

3.1.3 Cuts and Lacerations

Field activities that involve excavating activities usually involve contact with various types of machinery. A first aid kit approved by the American Red Cross will be available during all intrusive activities.

3.1.4 Lifting Hazards

Improper lifting by workers is one of the leading causes of industrial injuries. Field workers in the excavation program may be required to lift heavy objects. Therefore, all members of the field crew should be trained in the proper methods of lifting heavy objects. All workers should be cautioned against lifting objects too heavy for one person.

3.1.5 Utility Hazards

Before conducting any excavation, the excavation contractor will be responsible for locating and verifying all existing utilities at each excavation.

3.1.6 Traffic Hazards

All traffic, vehicular and pedestrian, shall be maintained and protected at all times consistent with local, state and federal agency regulations regarding such traffic and in accordance with NYCDOT guidelines. The excavation contractor shall carry on his operations without undue interference or delays to traffic. The excavation contractor shall furnish all labor, materials, guards, barricades, signs, lights, and anything else necessary to maintain traffic and to protect his work and the public, during operations.

3.2 Work in Extreme Temperatures

Work under extremely hot or cold weather conditions requires special protocols to minimize the chance that employees will be affected by heat or cold stress.

3.2.1 Heat Stress

The combination of high ambient temperature, high humidity, physical exertion, and personal protective apparel, which limits the dissipation of body heat and moisture, can cause heat stress.

The following prevention, recognition and treatment strategies will be implemented to protect personnel from heat stress. Personnel will be trained to recognize the symptoms of heat stress and to apply the appropriate treatment.

1. Prevention
    a. Provide plenty of fluids. Available in the support zone will be a 50% solution of fruit punch and water or plain water.
    b. Work in Pairs. Individuals should avoid undertaking any activity alone.
    c. Provide cooling devices. A spray hose and a source of water will be provided to reduce body temperature, cool protective clothing and/or act as a quick-drench shower in case of an exposure incident.
    d. Adjustment of the work schedule. As is practical, the most labor-intensive tasks should be carried out during the coolest part of the day.

2. Recognition and Treatment
    a Heat Rash (or prickly heat):
        Cause: Continuous exposure to hot and humid air, aggravated by chafing clothing.
        Symptoms: Eruption of red pimples around sweat ducts accompanied by intense itching and tingling.
        Treatment: Remove source or irritation and cool skin with water or wet cloths.

    b. Heat Cramps (or heat prostration)
        Cause: Profuse perspiration accompanied by inadequate replenishment of body water and electrolytes.
        Symptoms: Muscular weakness, staggering gait, nausea, dizziness, shallow breathing, pale and clammy skin, approximately normal body temperature.
        Treatment: Perform the following while making arrangement for transport to a medical facility. Remove the worker to a contamination reduction zone. Remove protective clothing. Lie worker down on back in a cool place and raise feet 6 to 12 inches. Keep warm, but loosen all clothing. If conscious, provide sips of salt-water solution, using one teaspoon of salt in 12 ounces of water. Transport to a medical facility.
    c. Heat Stroke
        Cause: Same as heat exhaustion. This is also an extremely serious condition.
        Symptoms: Dry hot skin, dry mouth, dizziness, nausea, headache, rapid pulse.
        Treatment: Cool worker immediately by immersing or spraying with cool water or sponge bare skin after removing protective clothing. Transport to hospital.

3.2.2 Cold Exposure

Exposure to cold weather, wet conditions and extreme wind-chill factors may result in excessive loss of body heat (hypothermia) and /or frostbite. To guard against cold exposure and to prevent cold injuries, appropriate warm clothing should be worn, warm shelter must be readily available, rest periods should be adjusted as needed, and the physical conditions of on-site field personnel should be closely monitored. Personnel and supervisors working on-site will be made aware of the signs and symptoms of frost bite and hypothermia such as:

- Shivering;
- reduced blood pressure;
- reduced coordination;
- drowsiness;
- impaired judgment;
- fatigue;
- pupils dilated but reactive to light; and,
- numbing of the toes and fingers.

3.3 Chemical Hazards

Considering the previous groundwater sampling results, the following compounds are considered for the site as potential contaminants: volatile organic compounds (VOCs).

VOCs reported to be present in groundwater include the following:

Acetone	Cis-1,2-dichoroethene	m&p-xylene	o-xylene
Tetrachloroethene	Trichloroethene	Vinyl chloride	

The primary routes of exposure to these contaminants are inhalation, ingestion and absorption. **Appendix C** includes information sheets for suspected chemicals that may be encountered at the site.

3.3.1 Respirable Dust

Dust may be generated from vehicular traffic and/or excavation activities. If visible observation detects elevated levels of dust, a program of wetting will be employed by the site safety officer. If elevated dust levels persist, the site safety office will employ dust monitoring using a particulate monitor (Miniram or equivalent). If monitoring detects concentrations greater than 150 µg/m3 over daily background, the site safety officer will take corrective actions as defined herein, including the use of water for dust suppression and if this is not effective, requiring workers to wear APRs with efficiency particulate air (HEPA) cartridges.

Absorption pathways for dust and direct contact with soils or groundwater will be mitigated with the implementation of latex gloves, hand washing and decontamination exercises when necessary.

3.3.2 Dust Control and Monitoring During Earthwork

Dust generated during excavation activities or other earthwork may contain contaminants identified in soils at the site. Dust will be controlled by wetting the working surface with water. Calcium chloride may be used if the problem cannot be controlled with water. Air monitoring and dust control techniques are specified in a site specific Dust Control Plan (if applicable). Site

workers will not be required to wear APR's unless dust concentrations are consistently over 150 $\mu g/m^3$ over site-specific background in the breathing zone as measured by a dust monitor unless the site safety officer directs workers to wear APRs. The site safety officer will use visible dust as an indicator to implement the dust control plan.

3.3.3 Organic Vapors

Elevated levels of pet VOCs were detected in soil and groundwater samples collected during previous investigations at the site. Therefore, excavation activities may cause the release of organic vapors to the atmosphere. The site safety officer will periodically monitor organic vapors with a Photoionization Detector (PID) during excavation activities to determine whether organic vapor concentrations exceed action levels shown in Section 5 and/or the Community Air Monitoring Plan.

4.0 PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) shall be selected in accordance with the site air monitoring program, OSHA 29 CFR 1910.120(c), (g), and 1910.132. Protective equipment shall be NIOSH approved and respiratory protection shall conform to OSHA 29 CFR Part 1910.133 and 1910.134 specifications; head protection shall conform to 1910.135; eye and face protection shall conform to 1910.133; and foot protection shall conform to 1910.136. The only true difference among the levels of protection from D thru B is the addition of the type of respiratory protection. **It is anticipated that work will be performed in Level D PPE.**

4.1 Level D

Level D PPE shall be donned when the atmosphere contains no known hazards and work functions preclude splashes, immersion, or the potential for inhalation of, or contact with, hazardous concentrations of harmful chemicals. Level D PPE consists of:

- standard work uniform, coveralls, or tyvek, as needed;
- steel toe and steel shank work boots;
- hard hat;
- gloves, as needed;
- safety glasses;
- hearing protection;
- equipment replacements are available as needed.

4.2 Level C

Level C PPE shall be donned when the concentrations of measured total organic vapors in the breathing zone exceed background concentrations (using a portable OVA, or equivalent), but are less than 5 ppm. The specifications on the APR filters used must be appropriate for contaminants identified or expected to be encountered. Level C PPE shall be donned when the identified contaminants have adequate warning properties and criteria for using APR have been met. Level C PPE consists of:

- chemical resistant or coated tyvek coveralls;
- steel-toe and steel-shank workboots;
- chemical resistant overboots or disposable boot covers;
- disposable inner gloves (surgical gloves);
- disposable outer gloves;
- full face APR fitted with organic vapor/dust and mist filters or filters appropriate for the identified or expected contaminants;
- hard hat;
- splash shield, as needed; and,
- ankles/wrists taped with duct tape.

The site safety officer will verify if Level C is appropriate by checking organic vapor concentrations using compound and/or class-specific detector tubes.

- chemical resistant coveralls;
- steel-toe and steel-shank workboots;
- chemical resistant overboots or disposable boot covers;
- disposable inner gloves;
- disposable outer gloves;
- hard hat; and,
- ankles/wrists taped.

The exact PPE ensemble is decided on a site-by-site basis by the Site Safety Officer with the intent to provide the most protective and efficient worker PPE.

4.3 Activity-Specific Levels of Personal Protection

The required level of PPE is activity-specific and is based on air monitoring results (Section 4.0) and properties of identified or expected contaminants. **It is expected that site work will be performed in Level D.** If air monitoring results indicate the necessity to upgrade the level of protection engineering controls (i.e. Facing equipment away from the wind and placing site personnel upwind of drilling locations, active venting, etc.) will be implemented before requiring the use of respiratory protection.

5.0 AIR MONITORING AND ACTION LEVELS

29 CFR 1910.120(h) specifies that monitoring shall be performed where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees are not exposed to levels which exceed permissible exposure limits, or published exposure levels if there are no permissible exposure limits, for hazardous substances.

5.1 Air Monitoring Requirements

If excavation work is performed, air will be monitored for VOCs with a portable ION Science 3000EX photoionization detector, or the equivalent. If necessary, Lower Explosive Limit (LEL) and oxygen will be monitored with a Combustible Gas Indicator (CGI). If appropriate, fugitive dust will be monitored using a MiniRam Model PDM-3 aerosol monitor. Air will be monitored when any of the following conditions apply:

- initial site entry;
- during any work where a potential IDLH condition or flammable atmosphere could develop;
- excavation work begins on another portion of the site;
- contaminants, other than those previously identified, have been discovered;
- each time a different task or activity is initiated;
- during trenching and/or excavation work.

The designated site safety officer will record air monitoring data and ensure that air monitoring instruments are calibrated and maintained in accordance with manufacturer's specifications. Instruments will be zeroed daily and checked for accuracy. Monitoring results will be recorded in a field notebook and will be transferred to instrument reading logs.

5.2 Work Stoppage Responses

The following responses will be initiated whenever one or more of the action levels necessitating a work stoppage are exceeded:

1 The SSO will be consulted immediately
2 All personnel (except as necessary for continued monitoring and contaminant migration, if applicable) will be cleared from the work area (eg from the exclusion zone).
3 Monitoring will be continued until intrusive work resumes.

5.3 Action Levels During Excavation Activities

Instrument readings will be taken in the breathing zone above the excavation pit unless otherwise noted. Each action level is independent of all other action levels in determining responses.

Organic Vapors (PID)	LEL %	Responses
0-1 ppm above background	0%	• Continue excavating • Level D protection • Continue monitoring every 10 minutes
1-5 ppm Above Background, Sustained Reading	1-10%	• Continue excavating • Go to Level C protection or employ engineering controls • Continue monitoring every 10 minutes
5-25 ppm Above Background, Sustained Reading	10-20%	• Discontinue excavating, unless PID is only action level exceeded. • Level C protection or employ engineering controls • Continue monitoring for organic vapors 200 ft downwind • Continuous monitoring for LEL at excavation pit
>25 ppm Above Background, Sustained Reading	>20%	• Discontinue excavating • Withdraw from area, shut off all engine ignition sources. • Allow pit to vent • Continuous monitoring for organic vapors 200 ft downwind.

Notes: Air monitoring will occur in the breathing zone 30 inches above the excavation pit. Readings may also be taken in the excavation pit but will not be used for action levels.

If action levels for any one of the monitoring parameters are exceeded, the appropriate responses listed in the right hand column should be taken. If instrument readings do not return to acceptable levels after the excavation pit has been vented for a period of greater than one-half hour, a decision will then be made whether or not to seal the pit with suppressant foam.

If, during excavation activities, downwind monitoring PID readings are greater than 5 ppm above background for more than one-half hour, excavation will stop until sustained levels are less then 5 ppm (see Community Air Monitoring Plan).

6.0 SITE CONTROL

6.1 Work Zones

The primary purpose of site controls is to establish the perimeter of a hazardous area, to reduce the migration of contaminants into clean areas, and to prevent access or exposure to hazardous materials by unauthorized persons. When operations are to take place involving hazardous materials, the site safety officer will establish an exclusion zone, a decontamination zone, and a support zone. These zones "float" (move around the site) depending on the tasks being performed on any given day. The site safety officer will outline these locations before work begins and when zones change. The site safety officer records this information in the site log book. **It is expected that the entire fenced in area of the Site will be the exclusion zone, with the decontamination zone the Site entrance.** The support zone will be the office trailer.

Tasks requiring OSHA 40-hour Hazardous Waste Operations and Emergency Response Operations training are carried out in the exclusion zone. The exclusion zone is defined by the site safety officer but will typically be a 50-foot area around work activities. Gross decontamination (as determined by the site Health and Safety Officer) is conducted in the exclusion zone; all other decontamination is performed in the decontamination zone or trailer.

Protective equipment is removed in the decontamination zone. Disposable protective equipment is stored in receptacles staged in the decontamination zone, and non-disposable equipment is decontaminated. All personnel and equipment exit the exclusion zone through the decontamination zone. If a decontamination trailer is provided the first aid equipment, an eye wash unit, and drinking water are kept in the decontamination trailer.

The support zone is used for vehicle parking, daily safety meetings, and supply storage. Eating, drinking, and smoking are permitted only in the support zone. When a decontamination trailer is not provided, the eye wash unit, first aid equipment, and drinking water are kept at a central location designated by the site safety officer.

6.2 General Site Work

An excavation contractor with appropriate experience, personnel and training (40 hr OSHA Hazardous Waste Operations and Emergency Response Operations - HAZWOPER) is required to perform the removal of the lead hazardous soil. After this material is removed the contractor will remove historic fill and uncontaminated soil. The excavation contractor’s on-site personnel engaged in historic fill and native soil removal will have a minimum of 24 hour HAZWOPER training.

7.0 CONTINGENCY PLAN/EMERGENCY RESPONSE PLAN

Site personnel must be prepared in the event of an emergency. Emergencies can take many forms: illnesses, injuries, chemical exposure, fires, explosions, spills, leaks, releases of harmful contaminants, or sudden changes in the weather.

Emergency telephone numbers and a map to the hospital will be posted in the command post. Site personnel should be familiar with the emergency procedures, and the locations of site safety, first aid, and communication equipment.

7.1 Emergency Equipment On-site

Private telephones:	Site personnel.
Two-way radios:	Site personnel where necessary.
Emergency Alarms:	On-site vehicle horns*.
First aid kits:	On-site, in vehicles or office.
Fire extinguisher:	On-site, in office or on equipment.

* Horns: Air horns will be supplied to personnel at the discretion of the project superintendent or site safety officer.

7.2 Emergency Telephone Numbers

General Emergencies	911
New York City Police	911
Mount Sinai Queens – General Hospital	1- **(718) 932-1000**
Brooklyn Hospital Center	1-718-250-8000
NYSDEC Spills Division	1-800-457-7362
NYSDEC Division of Env. Remediation	1-518-402-9625
NYCDEP	1-718-699-9811
NYC Department of Health	1-212-788-4711
NYC Fire Department	911
National Response Center	1-800-424-8802
Poison Control	1-212-340-4494
Site Safety Officer	1-631-504-6000
Alternate Site Safety Officer	1-631-504-6000

7.3 Personnel Responsibilities During an Emergency

The project manager is primarily responsible for responding to and correcting any emergency situations. However, in the absence of the project manager, the site safety officer shall act as the project manager's on-site designee and perform the following tasks:

- Take appropriate measures to protect personnel including: withdrawal from the exclusion zone, evacuate and secure the site, or upgrade/downgrade the level of protective clothing and respiratory protection;

- Ensure that appropriate federal, state, and local agencies are informed and emergency

response plans are coordinated. In the event of fire or explosion, the local fire department should be summoned immediately. If toxic materials are released to the air, the local authorities should be informed in order to assess the need for evacuation;

- Ensure appropriate decontamination, treatment, or testing for exposed or injured personnel;
- Determine the cause of incidents and make recommendations to prevent recurrence; and,
- Ensure that all required reports have been prepared.

The following key personnel are planned for this project:

- Project Manager — Kevin Brussee (631) 504-6000
- Construction Superintendent — Abraham Guttman (929) 441-0051
- Site Safety Officer — Tom Gallo (631) 504-6000

7.4 Medical Emergencies

A person who becomes ill or injured in the exclusion zone will be decontaminated to the maximum extent possible. If the injury or illness is minor, full decontamination will be completed and first aid administered prior to transport. First aid will be administered while waiting for an ambulance or paramedics. A Field Accident Report (**Appendix D**) must be filled out for any injury.

A person transporting an injured/exposed person to a clinic or hospital for treatment will take the directions to the hospital (**Appendix D**).and information on the chemical(s) to which they may have been exposed (**Appendix C**).

7.5 Fire or Explosion

In the event of a fire or explosion, the local fire department will be summoned immediately. The site safety officer or his designated alternate will advise the fire commander of the location, nature and identification of the hazardous materials on-site. If it is safe to do so, site personnel may:

- use fire fighting equipment available on site; or,
- remove or isolate flammable or other hazardous materials that may contribute to the fire.

7.6 Evacuation Routes

Evacuation routes established by work area locations for each site will be reviewed prior to commencing site operations. As the work areas change, the evacuation routes will be altered accordingly, and the new route will be reviewed.

Under extreme emergency conditions, evacuation is to be immediate without regard for equipment. The evacuation signal will be a continuous blast of a vehicle horn, if possible, and/or by verbal/radio communication. When evacuating the site, personnel will follow these

instructions:

- Keep upwind of smoke, vapors, or spill location.
- Exit through the decontamination corridor if possible.
- If evacuation through the decontamination corridor is not possible, personnel should remove contaminated clothing once they are in a safe location and leave it near the exclusion zone or in a safe place.
- The site safety officer will conduct a head count to ensure that all personnel have been evacuated safely. The head count will be correlated to the site and/or exclusion zone entry/exit log.
- If emergency site evacuation is necessary, all personnel are to escape the emergency situation and decontaminate to the maximum extent practical.

7.7 Spill Control Procedures

Spills associated with site activities may be attributed to project equipment and include gasoline, diesel and hydraulic oil. In the event of a leak or a release, site personnel will inform their supervisor immediately, locate the source of spillage and stop the flow if it can be done safely. A spill containment kit including absorbent pads, booms and/or granulated speedy dry absorbent material will be available to site personnel to facilitate the immediate recovery of the spilled material. Daily inspections of site equipment components including hydraulic lines, fuel tanks, etc. will be performed by their respective operators as a preventative measure for equipment leaks and to ensure equipment soundness. In the event of a spill, site personnel will immediately notify the NYSDEC (1-800-457-7362), and a spill number will be generated.

7.8 Vapor Release Plan

If work zone organic vapor (excluding methane) exceeds 5 ppm, then a downwind reading will be made either 200 feet from the work zone or at the property line, whichever is closer. If readings at this location exceed 5 ppm over background, the work will be stopped.

If 5 ppm of VOCs are recorded over background on a PID at the property line, then an off-site reading will be taken within 20 feet of the nearest residential or commercial property, whichever is closer. If efforts to mitigate the emission source are unsuccessful for 30 minutes, then the designated site safety officer will:

- contact the local police;
- continue to monitor air every 30 minutes, 20 feet from the closest off-site property. If two successive readings are below 5 ppm (non-methane), off-site air monitoring will be halted.
- All property line and off site air monitoring locations and results associated with vapor releases will be recorded in the site safety log book.

APPENDIX A

SITE SAFETY ACKNOWLEDGEMENT FORM

DAILY BREIFING SIGN-IN SHEET

Date:_____ Person Conducting Briefing:_____

Project Name and Location:_____

1. AWARENESS (topics discussed, special safety concerns, recent incidents, etc…):

2. OTHER ISSUES (HASP changes, attendee comments, etc…):

3. ATTENDEES (Print Name):

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

APPENDIX B

SITE SAFETY PLAN AMENDMENTS

SITE SAFETY PLAN AMENDMENT FORM

Site Safety Plan Amendment #: _____

Site Name: _____

Reason for Amendment: _____

_____

_____

_____

Alternative Procedures: _____

_____

_____

_____

Required Changes in PPE: _____

_____

_____

_____

_____ _____

Project Superintendent (signature) **Date**

_____ _____

Health and Safety Consultant (signature) **Date**

_____ _____

Site Safety Officer (signature) **Date**

APPENDIX C

CHEMICAL HAZARDS

CHEMICAL HAZARDS

The attached International Chemical Safety Cards are provided for contaminants of concern that have been identified in soils and/or groundwater at the site.

International Chemical Safety Cards

ACETONE

ICSC: 0087

2-Propanone
Dimethyl ketone
Methyl ketone
C_3H_6O / CH_3COCH_3
Molecular mass: 58.1

ICSC # 0087
CAS # 67-64-1
RTECS # AL3150000
UN # 1090
EC # 606-001-00-8
April 22, 1994 Validated
Fi, review at IHE: 10/09/89

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder, alcohol-resistant foam, water in large amounts, carbon dioxide.
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Do NOT use compressed air for filling, discharging, or handling.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE			
•INHALATION	Sore throat. Cough. Confusion. Headache. Dizziness. Drowsiness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness. Pain. Blurred vision. Possible corneal damage.	Safety spectacles or face shield . Contact lenses should not be worn.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Nausea. Vomiting. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Personal protection: self-contained breathing apparatus. Ventilation. Collect leaking liquid in sealable containers. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. Then wash away with plenty of water.	Fireproof. Separated from strong oxidants. Store in an area without drain or sewer access.	F symbol Xi symbol R: 11-36-66-67 S: 2-9-16-26 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

International Chemical Safety Cards

ACETONE

ICSC: 0087

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air and may travel along the ground; distant ignition possible.

CHEMICAL DANGERS:
The substance can form explosive peroxides on contact with strong oxidants such as acetic acid, nitric acid, hydrogen peroxide. Reacts with chloroform and bromoform under basic conditions, causing fire and explosion hazard. Attacks plastic.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 500 ppm as TWA, 750 ppm as STEL; A4 (not classifiable as a human carcinogen); BEI issued; (ACGIH 2004).
MAK: 500 ppm 1200 mg/m³
Peak limitation category: I(2); Pregnancy risk group: D; (DFG 2006).
OSHA PEL†: TWA 1000 ppm (2400 mg/m^3)
NIOSH REL: TWA 250 ppm (590 mg/m^3)
NIOSH IDLH: 2500 ppm 10%LEL See: 67641

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and through the skin.

INHALATION RISK:
A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C; on spraying or dispersing, however, much faster.

EFFECTS OF SHORT-TERM EXPOSURE:
The vapour irritates the eyes and the respiratory tract. The substance may cause effects on the central nervous system , liver , kidneys and gastrointestinal tract .

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the blood and bone marrow .

PHYSICAL PROPERTIES

Boiling point: 56°C
Melting point: -95°C
Relative density (water = 1): 0.8
Solubility in water:
miscible
Vapour pressure, kPa at 20°C: 24

Relative vapour density (air = 1): 2.0
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.2
Flash point: -18°C c.c.
Auto-ignition temperature: 465°C
Explosive limits, vol% in air: 2.2-13
Octanol/water partition coefficient as log Pow: -0.24

ENVIRONMENTAL DATA

N O T E S

Use of alcoholic beverages enhances the harmful effect.

Transport Emergency Card: TEC (R)-30S1090

NFPA Code: H 1; F 3; R 0;
Card has been partially updated in July 2007: see Occupational Exposure Limits.
Card has been partially updated in January 2008: see Storage.

ADDITIONAL INFORMATION

Material Safety Data Sheet

cis-1,2-Dichloroethylene, 97%

ACC# 97773

Section 1 - Chemical Product and Company Identification

MSDS Name: cis-1,2-Dichloroethylene, 97%
Catalog Numbers: AC113380000, AC113380025, AC113380100
Synonyms: cis-Acetylene dichloride.
Company Identification:

Acros Organics N.V.
One Reagent Lane
Fair Lawn, NJ 07410

For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
156-59-2	cis-1,2-Dichloroethylene	97	205-859-7

Section 3 - Hazards Identification

EMERGENCY OVERVIEW

Appearance: Clear liquid. Flash Point: 6 deg C.
Warning! Flammable liquid and vapor. Harmful if inhaled. Unstabilized substance may polymerize. Causes eye and skin irritation. May be harmful if swallowed. May cause respiratory tract irritation.
Target Organs: Central nervous system, respiratory system, eyes, skin.

Potential Health Effects

Eye: Causes moderate eye irritation.
Skin: Causes moderate skin irritation. May cause dermatitis.
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed. May cause central nervous system depression.
Inhalation: May cause respiratory tract irritation. May cause narcotic effects in high concentration. Eye irritation, vertigo, and nausea were reported in humans exposed at 2200 ppm.
Chronic: Not available. Some German investigators reported fatty degeneration of the liver upon repeated narcotic doses in rats and

Section 4 - First Aid Measures

Eyes: In case of contact, immediately flush eyes with plenty of water for a t least 15 minutes. Get medical aid.
Skin: In case of contact, flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid if irritation develops and persists. Wash clothing before reuse.
Ingestion: If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.
Inhalation: If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.
Notes to Physician: Treat symptomatically and supportively.

Section 5 - Fire Fighting Measures

General Information: As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Use water spray to keep fire-exposed containers cool. Flammable liquid and vapor. Fire or excessive heat may result in violent rupture of the container due to bulk polymerization. Vapors are heavier than air and may travel to a source of ignition and flash back. Vapors can spread along the ground and collect in low or confined areas. Hazardous polymerization may occur under fire conditions.
Extinguishing Media: Use water fog, dry chemical, carbon dioxide, or regular foam.
Flash Point: 6 deg C (42.80 deg F)
Autoignition Temperature: 440 deg C (824.00 deg F)
Explosion Limits, Lower:9.70 vol %
Upper: 12.80 vol %
NFPA Rating: (estimated) Health: 2; Flammability: 3; Instability: 2

Section 6 - Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.
Spills/Leaks: Absorb spill with inert material (e.g. vermiculite, sand or earth), then place in suitable container. Remove all sources of ignition. Use a spark-proof tool. Provide ventilation.

Section 7 - Handling and Storage

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Ground and bond containers when transferring material. Use spark-proof tools and explosion proof equipment. Avoid contact with eyes, skin, and clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Avoid ingestion and inhalation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames. Use only with adequate ventilation. Pure vapor will be uninhibited and may polymerize in vents or other confined spaces.
Storage: Keep away from sources of ignition. Store in a tightly closed container. Flammables-area. Store protected from light and air.

Section 8 - Exposure Controls, Personal Protection

Engineering Controls: Use process enclosure, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.
Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
cis-1,2-Dichloroethylene	200 ppm TWA	none listed	none listed

OSHA Vacated PELs: cis-1,2-Dichloroethylene: No OSHA Vacated PELs are listed for this chemical.
Personal Protective Equipment
Eyes: Wear chemical splash goggles.
Skin: Wear appropriate protective gloves to prevent skin exposure.
Clothing: Wear appropriate protective clothing to prevent skin exposure.
Respirators: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Liquid
Appearance: Clear
Odor: Pleasant odor
pH: Not available.
Vapor Pressure: 201 mm Hg @ 25 deg C
Vapor Density: 3.34 (air=1)
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 60 deg C @ 760 mm Hg
Freezing/Melting Point:-80 deg C
Decomposition Temperature: Not available.
Solubility: Insoluble.
Specific Gravity/Density:1.2800
Molecular Formula:C2H2Cl2
Molecular Weight:96.94

Section 10 - Stability and Reactivity

Chemical Stability: Stable under normal temperatures and pressures. This material is a monomer and may polymerize under certain conditions if the stabilizer is lost.
Conditions to Avoid: Light, ignition sources, exposure to air, excess heat.
Incompatibilities with Other Materials: Strong oxidizing agents, strong bases, copper.
Hazardous Decomposition Products: Hydrogen chloride, phosgene, carbon monoxide, carbon dioxide.
Hazardous Polymerization: May occur.

Section 11 - Toxicological Information

RTECS#:
CAS# 156-59-2: KV9420000
LD50/LC50:
CAS# 156-59-2:
Inhalation, rat: LC50 = 13700 ppm;
.

Carcinogenicity:
CAS# 156-59-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No data available.
Teratogenicity: No data available.
Reproductive Effects: No data available.
Mutagenicity: No data available.
Neurotoxicity: No data available.
Other Studies:

Section 12 - Ecological Information

No information available.

Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

Section 14 - Transport Information

	US DOT	Canada TDG
Shipping Name:	DOT regulated - small quantity provisions apply (see 49CFR173.4)	1,2-DICHLOROETHYLENE
Hazard Class:		3
UN Number:		UN1150
Packing Group:		II

Section 15 - Regulatory Information

US FEDERAL

TSCA
CAS# 156-59-2 is listed on the TSCA inventory.
Health & Safety Reporting List
None of the chemicals are on the Health & Safety Reporting List.
Chemical Test Rules
None of the chemicals in this product are under a Chemical Test Rule.
Section 12b
None of the chemicals are listed under TSCA Section 12b.
TSCA Significant New Use Rule
None of the chemicals in this material have a SNUR under TSCA.
CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
Section 313 No chemicals are reportable under Section 313.
Clean Air Act:
This material does not contain any hazardous air pollutants.
This material does not contain any Class 1 Ozone depletors.
This material does not contain any Class 2 Ozone depletors.
Clean Water Act:
None of the chemicals in this product are listed as Hazardous Substances under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
None of the chemicals in this product are listed as Toxic Pollutants under the CWA.
OSHA:
None of the chemicals in this product are considered highly hazardous by OSHA.
STATE
CAS# 156-59-2 can be found on the following state right to know lists: Pennsylvania, Massachusetts.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European / International Regulations

European Labeling in Accordance with EC Directives
Hazard Symbols:
XN F
Risk Phrases:

R 11 Highly flammable.
R 20 Harmful by inhalation.
R 52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety Phrases:

S 16 Keep away from sources of ignition - No smoking.
S 29 Do not empty into drains.
S 7 Keep container tightly closed.
S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 156-59-2: No information available.

Canada - DSL/NDSL

CAS# 156-59-2 is listed on Canada's NDSL List.

Canada - WHMIS

WHMIS: Not available.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16 - Additional Information

MSDS Creation Date: 2/09/1998
Revision #5 Date: 3/16/2007

International Chemical Safety Cards

o-XYLENE

ICSC: 0084

ortho-Xylene
1,2-Dimethylbenzene
o-Xylol
$C_6H_4(CH_3)_2$ / C_8H_{10}
Molecular mass: 106.2

ICSC # 0084
CAS # 95-47-6
RTECS # ZE2450000
UN # 1307
EC # 601-022-00-9
August 03, 2002 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 32°C explosive vapour/air mixtures may be formed.	Above 32°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants strong acids	Note: C Xn symbol R: 10-20/21-38 S: 2-25 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0084

International Chemical Safety Cards

o-XYLENE

ICSC: 0084

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts with strong acids strong oxidants

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 100 ppm as TWA 150 ppm as STEL A4 (ACGIH 2001). BEI (ACGIH 2001).
MAK: 100 ppm 440 mg/m³
Peak limitation category: II(2)
skin absorption (H);
Pregnancy risk group: D
(DFG 2005).
EU OEL: 50 ppm as TWA 100 ppm as STEL
(skin)
(EU 2000).
OSHA PEL†: TWA 100 ppm (435 mg/m^3)
NIOSH REL: TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3)
NIOSH IDLH: 900 ppm See: 95476

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation, through the skin and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin. The substance may have effects on the central nervous system. Exposure to the substance may enhance hearing damage caused by exposure to noise. Animal tests show that this substance possibly causes toxicity to human reproduction or development.

PHYSICAL PROPERTIES

Boiling point: 144°C
Melting point: -25°C
Relative density (water = 1): 0.88
Solubility in water:
none
Vapour pressure, kPa at 20°C: 0.7

Relative vapour density (air = 1): 3.7
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02
Flash point: 32°C c.c.
Auto-ignition temperature: 463°C
Explosive limits, vol% in air: 0.9-6.7
Octanol/water partition coefficient as log Pow: 3.12

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms.

N O T E S

Depending on the degree of exposure, periodic medical examination is indicated. The recommendations on this Card also apply to technical xylene. See ICSC 0086 p-Xylene and 0085 m-Xylene.

Transport Emergency Card: TEC (R)-30S1307-III
NFPA Code: H 2; F 3; R 0;

ADDITIONAL INFORMATION

IMPORTANT LEGAL NOTICE:

International Chemical Safety Cards

p-XYLENE

ICSC: 0086

para-Xylene
1,4-Dimethylbenzene
p-Xylol
$C_6H_4(CH_3)_2$ / C_8H_{10}
Molecular mass: 106.2

ICSC # 0086
CAS # 106-42-3
RTECS # ZE2625000
UN # 1307
EC # 601-022-00-9
August 03, 2002 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 27°C explosive vapour/air mixtures may be formed.	Above 27°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE! AVOID EXPOSURE OF (PREGNANT) WOMEN!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants, strong acids	Note: C Xn symbol R: 10-20/21-38 S: 2-25 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0086

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

p-XYLENE

ICSC: 0086

I M P O R T A N T D A T A	**PHYSICAL STATE; APPEARANCE:** COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR. **PHYSICAL DANGERS:** As a result of flow, agitation, etc., electrostatic charges can be generated. **CHEMICAL DANGERS:** Reacts with strong acids strong oxidants **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 100 ppm as TWA 150 ppm as STEL A4 (ACGIH 2001). BEI (ACGIH 2001). MAK: 100 ppm 440 mg/m³ Peak limitation category: II(2) skin absorption (H); Pregnancy risk group: D (DFG 2005). EU OEL: 50 ppm as TWA 100 ppm as STEL (skin) (EU 2000). OSHA PEL†: TWA 100 ppm (435 mg/m^3) NIOSH REL: TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3) NIOSH IDLH: 900 ppm See: 95476 **ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation, through the skin and by ingestion. **INHALATION RISK:** A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C. **EFFECTS OF SHORT-TERM EXPOSURE:** The substance is irritating to the eyes and the skin The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** The liquid defats the skin. The substance may have effects on the central nervous system. Animal tests show that this substance possibly causes toxicity to human reproduction or development.
PHYSICAL PROPERTIES	Boiling point: 138°C Melting point: 13°C Relative density (water = 1): 0.86 Solubility in water: none Vapour pressure, kPa at 20°C: 0.9 Relative vapour density (air = 1): 3.7 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02 Flash point: 27°C c.c. Auto-ignition temperature: 528°C Explosive limits, vol% in air: 1.1-7.0 Octanol/water partition coefficient as log Pow: 3.15
ENVIRONMENTAL DATA	The substance is toxic to aquatic organisms. 

N O T E S

Depending on the degree of exposure, periodic medical examination is indicated. The recommendations on this Card also apply to technical xylene. See ICSC 0084 o-Xylene and 0085 m-Xylene.

Transport Emergency Card: TEC (R)-30S1307-III
NFPA Code: H 2; F 3; R 0;

ADDITIONAL INFORMATION

ICSC: 0086 **p-XYLENE**

International Chemical Safety Cards

m-XYLENE

ICSC: 0085

meta-Xylene
1,3-Dimethylbenzene
m-Xylol
$C_6H_4(CH_3)_2$ / C_8H_{10}
Molecular mass: 106.2

ICSC # 0085
CAS # 108-38-3
RTECS # ZE2275000
UN # 1307
EC # 601-022-00-9
August 03, 2002 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Flammable.	NO open flames, NO sparks, and NO smoking.	Powder, water spray, foam, carbon dioxide.
EXPLOSION	Above 27°C explosive vapour/air mixtures may be formed.	Above 27°C use a closed system, ventilation, and explosion-proof electrical equipment. Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		STRICT HYGIENE!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Burning sensation. Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Remove all ignition sources. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: filter respirator for organic gases and vapours.)	Fireproof. Separated from strong oxidants strong acids	Note: C Xn symbol R: 10-20/21-38 S: 2-25 UN Hazard Class: 3 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0085

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

m-XYLENE

ICSC: 0085

I M P O R T A N T D A T A	**PHYSICAL STATE; APPEARANCE:** COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR. **PHYSICAL DANGERS:** As a result of flow, agitation, etc., electrostatic charges can be generated. **CHEMICAL DANGERS:** Reacts with strong acids strong oxidants **OCCUPATIONAL EXPOSURE LIMITS:** TLV: 100 ppm as TWA 150 ppm as STEL A4 (ACGIH 2001). BEI (ACGIH 2001). MAK: 100 ppm 440 mg/m³ Peak limitation category: II(2) skin absorption (H); Pregnancy risk group: D (DFG 2005). EU OEL: 50 ppm as TWA 100 ppm as STEL (skin) (EU 2000). OSHA PEL†: TWA 100 ppm (435 mg/m^3) NIOSH REL: TWA 100 ppm (435 mg/m^3) ST 150 ppm (655 mg/m^3) NIOSH IDLH: 900 ppm See: 95476	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation, through the skin and by ingestion. **INHALATION RISK:** A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C. **EFFECTS OF SHORT-TERM EXPOSURE:** The substance is irritating to the eyes and the skin The substance may cause effects on the central nervous system If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. **EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:** The liquid defats the skin. The substance may have effects on the central nervous system Animal tests show that this substance possibly causes toxicity to human reproduction or development.
PHYSICAL PROPERTIES	Boiling point: 139°C Melting point: -48°C Relative density (water = 1): 0.86 Solubility in water: none Vapour pressure, kPa at 20°C: 0.8	Relative vapour density (air = 1): 3.7 Relative density of the vapour/air-mixture at 20°C (air = 1): 1.02 Flash point: 27°C c.c. Auto-ignition temperature: 527°C Explosive limits, vol% in air: 1.1-7.0 Octanol/water partition coefficient as log Pow: 3.20
ENVIRONMENTAL DATA	The substance is toxic to aquatic organisms. 	

N O T E S

Depending on the degree of exposure, periodic medical examination is indicated. The recommendations on this Card also apply to technical xylene. See ICSC 0084 o-Xylene and 0086 p-Xylene.

NFPA Code: H 2; F 3; R 0;
Transport Emergency Card: TEC (R)-30S1307-III

ADDITIONAL INFORMATION

ICSC: 0085 **m-XYLENE**

International Chemical Safety Cards

TETRACHLOROETHYLENE

ICSC: 0076

1,1,2,2-Tetrachloroethylene
Perchloroethylene
Tetrachloroethene
C_2Cl_4 / $Cl_2C=CCl_2$
Molecular mass: 165.8

ICSC # 0076
CAS # 127-18-4
RTECS # KX3850000
UN # 1897
EC # 602-028-00-4
April 13, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Not combustible. Gives off irritating or toxic fumes (or gases) in a fire.		In case of fire in the surroundings: use appropriate extinguishing media.
EXPLOSION			
EXPOSURE		STRICT HYGIENE! PREVENT GENERATION OF MISTS!	
•INHALATION	Dizziness. Drowsiness. Headache. Nausea. Weakness. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves. Protective clothing.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety goggles , face shield .	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give plenty of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment. Personal protection: filter respirator for organic gases and vapours.	Separated from metals ,(see Chemical Dangers), food and feedstuffs . Keep in the dark. Ventilation along the floor.	Do not transport with food and feedstuffs. Marine pollutant. Xn symbol N symbol R: 40-51/53 S: (2-)23-36/37-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0076

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

TETRACHLOROETHYLENE

ICSC: 0076

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (hydrogen chloride, phosgene, chlorine). The substance decomposes slowly on contact with moisture producing trichloroacetic acid and hydrochloric acid. Reacts with metals such as aluminium, lithium, barium, beryllium.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 25 ppm as TWA, 100 ppm as STEL; A3 (confirmed animal carcinogen with unknown relevance to humans); BEI issued; (ACGIH 2004).
MAK: skin absorption (H);
Carcinogen category: 3B;
(DFG 2004).
OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 3-hours)
NIOSH REL: Ca Minimize workplace exposure concentrations. See Appendix A
NIOSH IDLH: Ca 150 ppm See: 127184

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful contamination of the air will be reached rather slowly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes , the skin and the respiratory tract . If this liquid is swallowed, aspiration into the lungs may result in chemical pneumonitis. The substance may cause effects on the central nervous system. Exposure at high levels may result in unconsciousness.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the liver and kidneys. This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 121°C
Melting point: -22°C
Relative density (water = 1): 1.6
Solubility in water, g/100 ml at 20°C: 0.015

Vapour pressure, kPa at 20°C: 1.9
Relative vapour density (air = 1): 5.8
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.09
Octanol/water partition coefficient as log Pow: 2.9

ENVIRONMENTAL DATA

The substance is toxic to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

N O T E S

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-61S1897

NFPA Code: H2; F0; R0;

ADDITIONAL INFORMATION

IMPORTANT LEGAL NOTICE:

	modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

TRICHLOROETHYLENE

ICSC: 0081

1,1,2-Trichloroethylene
Trichloroethene
Ethylene trichloride
Acetylene trichloride
C_2HCl_3 / $ClCH=CCl_2$
Molecular mass: 131.4

ICSC # 0081
CAS # 79-01-6
RTECS # KX4550000
UN # 1710
EC # 602-027-00-9
April 10, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Combustible under specific conditions. See Notes.		In case of fire in the surroundings: all extinguishing agents allowed.
EXPLOSION		Prevent build-up of electrostatic charges (e.g., by grounding).	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS! STRICT HYGIENE!	
•INHALATION	Dizziness. Drowsiness. Headache. Weakness. Nausea. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration may be needed. Refer for medical attention.
•SKIN	Dry skin. Redness.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap.
•EYES	Redness. Pain.	Safety spectacles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Abdominal pain. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Do NOT induce vomiting. Give one or two glasses of water to drink. Rest.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Personal protection: filter respirator for organic gases and vapours adapted to the airborne concentration of the substance. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in sand or inert absorbent and remove to safe place. Do NOT let this chemical enter the environment.	Separated from metals (see Chemical Dangers), strong bases, food and feedstuffs . Dry. Keep in the dark. Ventilation along the floor. Store in an area without drain or sewer access.	Do not transport with food and feedstuffs. Marine pollutant. T symbol R: 45-36/38-52/53-67 S: 53-45-61 UN Hazard Class: 6.1 UN Packing Group: III

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0081 OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

TRICHLOROETHYLENE

ICSC: 0081

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
On contact with hot surfaces or flames this substance decomposes forming toxic and corrosive fumes (phosgene , hydrogen chloride). The substance decomposes on contact with strong alkali producing dichloroacetylene , which increases fire hazard. Reacts violently with metal powders such as magnesium, aluminium, titanium, and barium. Slowly decomposed by light in presence of moisture, with formation of corrosive hydrochloric acid.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 50 ppm as TWA; 100 ppm as STEL; A5; BEI issued; (ACGIH 2004).
MAK:
Carcinogen category: 1; Germ cell mutagen group: 3B; (DFG 2007).
OSHA PEL†: TWA 100 ppm C 200 ppm 300 ppm (5-minute maximum peak in any 2 hours)
NIOSH REL: Ca See Appendix A See Appendix C
NIOSH IDLH: Ca 1000 ppm See: 79016

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation and by ingestion.

INHALATION RISK:
A harmful contamination of the air can be reached rather quickly on evaporation of this substance at 20°C.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes and the skin . Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system , resulting in respiratory failure . Exposure could cause lowering of consciousness.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
Repeated or prolonged contact with skin may cause dermatitis. The substance may have effects on the central nervous system , resulting in loss of memory. The substance may have effects on the liver and kidneys (see Notes). This substance is probably carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: 87°C
Melting point: -73°C
Relative density (water = 1): 1.5
Solubility in water, g/100 ml at 20°C: 0.1
Vapour pressure, kPa at 20°C: 7.8
Relative vapour density (air = 1): 4.5
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.3
Auto-ignition temperature: 410°C
Explosive limits, vol% in air: 8-10.5
Octanol/water partition coefficient as log Pow: 2.42
Electrical conductivity: 800pS/m

ENVIRONMENTAL DATA

The substance is harmful to aquatic organisms. The substance may cause long-term effects in the aquatic environment.

N O T E S

Combustible vapour/air mixtures difficult to ignite, may be developed under certain conditions. Use of alcoholic beverages enhances the harmful effect. Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert.

Transport Emergency Card: TEC (R)-61S1710

NFPA Code: H2; F1; R0;
Card has been partially updated in October 2004: see Occupational Exposure Limits, EU Classification, Emergency Response.
Card has been partially updated in April 2010: see Occupational Exposure Limits, Ingestion First Aid, Storage.

ADDITIONAL INFORMATION

ICSC: 0081 **TRICHLOROETHYLENE**

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

VINYL CHLORIDE

ICSC: 0082

Chloroethene
Chloroethylene
VCM
C_2H_3Cl / $H_2C=CHCl$
Molecular mass: 62.5
(cylinder)

ICSC # 0082
CAS # 75-01-4
RTECS # KU9625000
UN # 1086 (stabilized)
EC # 602-023-00-7
April 13, 2000 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Extremely flammable. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking.	Shut off supply; if not possible and no risk to surroundings, let the fire burn itself out; in other cases extinguish with powder, carbon dioxide.
EXPLOSION	Gas/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Use non-sparking handtools.	In case of fire: keep cylinder cool by spraying with water. Combat fire from a sheltered position.
EXPOSURE		AVOID ALL CONTACT!	IN ALL CASES CONSULT A DOCTOR!
•INHALATION	Dizziness. Drowsiness. Headache. Unconsciousness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Refer for medical attention.
•SKIN	ON CONTACT WITH LIQUID: FROSTBITE.	Protective gloves. Cold-insulating gloves. Protective clothing.	ON FROSTBITE: rinse with plenty of water, do NOT remove clothes.
•EYES	Redness. Pain.	Safety goggles or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION		Do not eat, drink, or smoke during work.	

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Ventilation. Remove all ignition sources. Personal protection: complete protective clothing including self-contained breathing apparatus.	Fireproof. Separated from incompatible materials .(See Chemical Dangers.) Cool. Store only if stabilized.	Note: D F+ symbol T symbol R: 45-12 S: 53-45 UN Hazard Class: 2.1

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0082

International Chemical Safety Cards

VINYL CHLORIDE

ICSC: 0082

I M P O R T A N T D A T A

PHYSICAL STATE; APPEARANCE:
COLOURLESS COMPRESSED LIQUEFIED GAS , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The gas is heavier than air, and may travel along the ground; distant ignition possible. Vinyl chloride monomer vapours are uninhibited and may form polymers in vents or flame arresters of storage tanks, resulting in blockage of vents.

CHEMICAL DANGERS:
The substance can under specific circumstances form peroxides, initiating explosive polymerization. The substance will polymerize readily due to heating and under the influence of air, light and on contact with a catalyst, strong oxidizing agents and metals such as copper and aluminium, with fire or explosion hazard. The substance decomposes on burning producing toxic and corrosive fumes (hydrogen chloride , phosgene). Attacks iron and steel in the presence of moisture.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 1 ppm as TWA; A1 (confirmed human carcinogen); (ACGIH 2004).
MAK:
Carcinogen category: 1;
(DFG 2004).
OSHA PEL: 1910.1017 TWA 1 ppm C 5 ppm 15-minute
NIOSH REL: Ca See Appendix A
NIOSH IDLH: Ca N.D. See: IDLH INDEX

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation.

INHALATION RISK:
A harmful concentration of this gas in the air will be reached very quickly on loss of containment.

EFFECTS OF SHORT-TERM EXPOSURE:
The substance is irritating to the eyes . The liquid may cause frostbite. The substance may cause effects on the central nervous system . Exposure could cause lowering of consciousness. Medical observation is indicated.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The substance may have effects on the liver, spleen, blood andperipheral blood vessels, and tissue and bones of the fingers. This substance is carcinogenic to humans.

PHYSICAL PROPERTIES

Boiling point: -13°C
Melting point: -154°C
Relative density (water = 1): 0.9 (liquid)
Density: 8 (vapour) at 15°C
g/l
Solubility in water:
none

Relative vapour density (air = 1): 2.2
Flash point:
-78°C c.c.
Auto-ignition temperature: 472°C
Explosive limits, vol% in air: 3.6-33
Octanol/water partition coefficient as log Pow: 0.6

ENVIRONMENTAL DATA

This substance may be hazardous to the environment; special attention should be given to ground water contamination.

N O T E S

Depending on the degree of exposure, periodic medical examination is suggested. The odour warning when the exposure limit value is exceeded is insufficient. Do NOT use in the vicinity of a fire or a hot surface, or during welding. An added stabilizer or inhibitor can influence the toxicological properties of this substance, consult an expert. Card has been partly updated in April 2005. See section Occupational Exposure Limits.

Transport Emergency Card: TEC (R)-20S1086

NFPA Code: H 2; F 4; R 2;

ADDITIONAL INFORMATION

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

APPENDIX D

HOSPITAL INFORMATION AND MAP

FIELD ACCIDENT REPORT

FIELD ACCIDENT REPORT

This report is to be filled out by the designated Site Safety Officer after EVERY accident.

PROJECT NAME _____ PROJECT. NO._____

Date of Accident _____ Time _____ Report By _____

Type of Accident (Check One):

( ) Vehicular ( ) Personal ( ) Property

Name of Injured _____ DOB or Age _____

How Long Employed _____

Names of Witnesses _____

_____

Description of Accident _____

_____

_____

Action Taken _____

_____

_____

Did the Injured Lose Any Time? _____ How Much (Days/Hrs.)? _____

Was Safety Equipment in Use at the Time of the Accident (Hard Hat, Safety Glasses, Gloves, Safety Shoes, etc.)? _____

_____

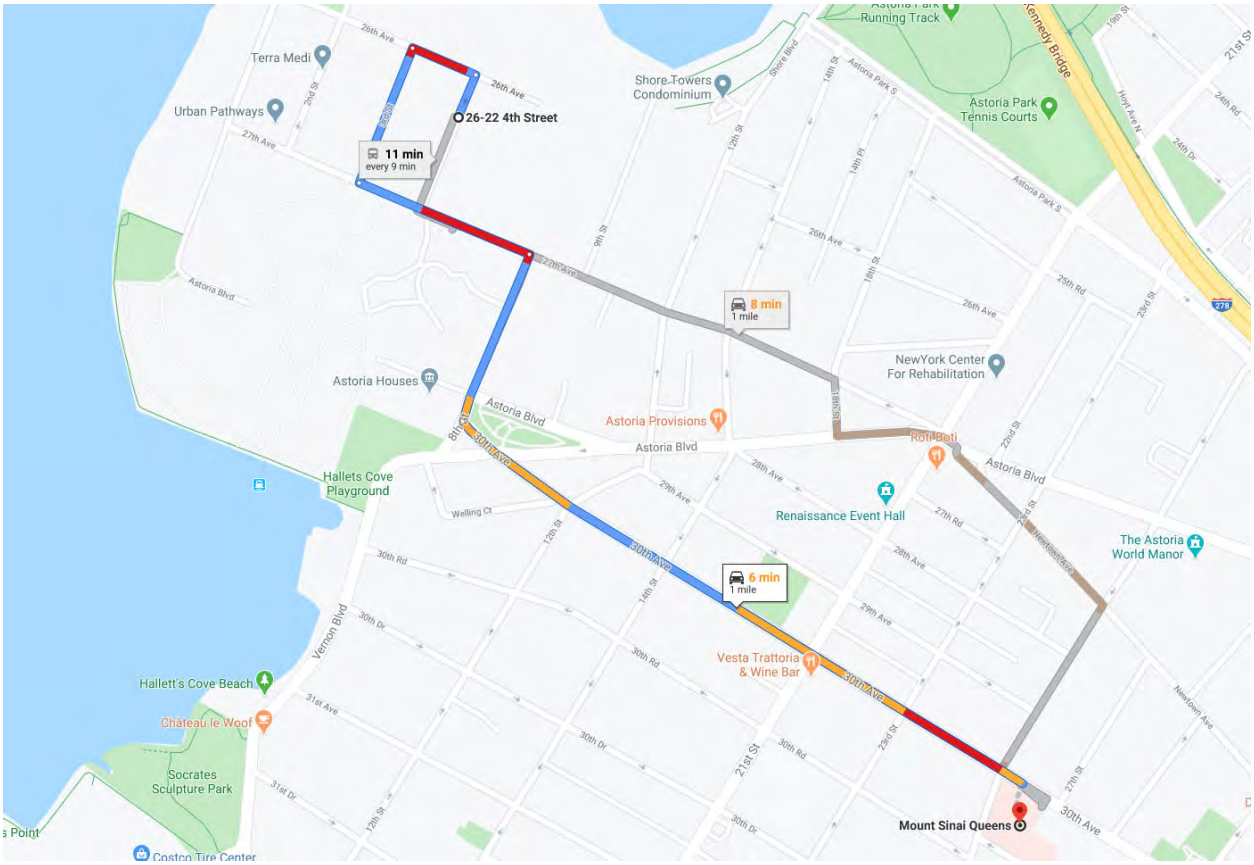
(If not, it is the EMPLOYEE'S sole responsibility to process his/her claim through his/her Health and Welfare Fund.)

INDICATE STREET NAMES, DESCRIPTION OF VEHICLES, AND NORTH ARROW

HOSPITAL INFORMATION AND MAP

The hospital nearest the site is:

Mount Sinai Queens – General Hospital
25-10 30th Avenue, Queens, NY 11102
718-932-1000
1 Mile – About 6 Minutes



DIRECTIONS:

Head south on 3rd Street towards 27th Avenue.
Turn right (East) onto 27th Avenue (0.1 miles)
Turn right (South) onto 8th Street (0.1 miles)
Turn left (East) onto 30th Avenue
Continue 0.5 miles.
Mount Sinai Queens General Hospital will be on your Right:

Arrive:
25-10 30th Avenue, Queens, NY 11102

APPENDIX F

Quality Assurance Project Plan

QUALITY ASSURANCE PROJECT PLAN
FORMER ANDOR MEDICAL SYSTEMS

26-22 4th STREET, ASTORIA, NEW YORK

Prepared on behalf of:

4th Street Developments LLC
143 Division Avenue
Brooklyn, NY 11211

SEPTEMBER 2021

Prepared by:

AMC Engineering, PLLC
18-36 42nd Street,
Astoria, NY 11105
(516) 545-0474

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FORMER ANDOR MEDICAL SYTEMS
26-22 4th STREET, ASTORIA, NY

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1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) has been prepared in accordance with DER-10 to detail procedures to be followed during the course of the sampling and analytical portion of the project, as required by the approved work plan.

To ensure the successful completion of the project each individual responsible for a given component of the project must be aware of the quality assurance objectives of his / her particular work and of the overall project. The Project Director will be responsible for overseeing all technical and administrative aspects of the project and for directing QA/QC activities. Mr. Ariel Czemerinski will be directly responsible for the overall quality assurance/quality control (QA/QC) for the project. Mr. Ariel Czemerinski will serve as the Quality Assurance Officer (QAO) and in this role may conduct:

- conduct periodic field and sampling audits;
- interface with the analytical laboratory to resolve problems; and
- interface with the data validator and/or the preparer of the DUSR to resolve problems.

Ariel Czemerinski will serve as the Project Manager and will be responsible for implementation of the Remedial Action Work Plan and coordination with field sampling crews and subcontractors. Reporting directly to the Project Manager will be the Field Operations Officer, Andrew Sung; who will serve as the on-Site qualified environmental professional who will record observations, and be responsible for the collection and handling of all samples.

1.1 Organization

QC for specific tasks will be the responsibility of the individuals and organizations listed below, under the direction and coordination of the Project Manager.

GENERAL RESPONSIBILITY	SCOPE OF WORK	RESPONSIBILITY OF QUALITY CONTROL
Field Operations	Supervision of Field Crew, sample collection and handling	Andrew Sung, AMC
Project Manager	Implementation of the RAWP	Ariel Czemerinski, AMC
Quality Assurance Officer	Interface with laboratory, validator and field crew to identify / resolve data quality issues.	Ariel Czemerinski, AMC
Laboratory Analysis	Analysis of groundwater samples for VOCs, SVOCs, by NYSDEC ASP methods Laboratory	Phoenix Environmental Laboratories, Inc.
Data review	Review for completeness and compliance	3rd party validation – Koman Government Solutions, LLC – Sherri Pullar

2.0 QUALITY ASSURANCE PROJECT PLAN OBJECTIVES

2.1 Overview

Overall project goals are defined through the development of Data Quality Objectives (DQOs), which are qualitative and quantitative Statements that specify the quality of the data required to support decisions; DQOs, as described in this section, are based on the end uses of the data as described in the work plan.

In this plan, Quality Assurance and Quality Control are defined as follows:

- Quality Assurance - The overall integrated program for assuring reliability of monitoring and measurement data.

- Quality Control - The routine application of procedures for obtaining prescribed standards of performance in the monitoring and measurement process.

2.2 QA / QC Requirements for Analytical Laboratory

Samples will be analyzed by a New York State Department of Health (NYSDOH) certified laboratory that is certified in the appropriate categories. Data generated from the laboratory will be used to evaluate contaminants such as volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) in groundwater. The QA requirements for all subcontracted analytical laboratory work performed on this project are described below. QA elements to be evaluated include accuracy, precision, sensitivity, representativeness, and completeness. The data generated by the analytical laboratory for this project are required to be sensitive enough to achieve required quantification limits as specified in NYSDEC Analytical Services Protocol (NYSDEC ASP, 07/2005) and useful for comparison with clean-up objectives. The analytical results meeting the required quantification limits will provide data sensitive enough to meet the data quality objectives of this remedial program as described in the work plan. Reporting of the data must be clear, concise, and comprehensive. The QC elements that are important to this project are completeness of field data, sample custody, sample holding times, sample preservation, sample storage, instrument calibration and blank contamination.

2.2.1 Instrument Calibration

Calibration curves will be developed for each of the compounds to be analyzed. Standard concentrations and a blank will be used to produce the initial curves. The development of calibration curves and initial calibration response factors must be consistent with method requirements presented in the most recent version of NYSDEC ASP 07/2005).

2.2.2 Continuing Instrument Calibration

The initial calibration curve will be verified every 12 hrs by analyzing one calibration standard. The standard concentration will be the midpoint concentration of the initial calibration curve. The calibration check compound must come within 25% relative percent difference (RPD) of the average response factor obtained during initial calibration. If the RPD is greater than 25%, then corrective action must be taken as provided in the specific methodology.

2.2.3 Method Blanks

Method blank or preparation blank is prepared from an analyte·free matrix which includes the same reagents, internal standards and surrogate standards as the related samples. It is carried through the

entire sample preparation and analytical procedure. A method blank analysis will be performed once for each 12 hr period during the analysis of samples for volatiles. An acceptable method blank will contain less than two (2) times the CRQL of methylene chloride, acetone and 2-butanone. For all other target compounds, the method blank must contain less than or equal to the CRQL of any single target compound. For non-target peaks in the method blank, the peak area must be less than 10 percent of the nearest internal standard. The method blank will be used to demonstrate the level of laboratory background and reagent contamination that might result from the analytical process itself.

2.2.4 Rinsate Blanks / Trip Blanks.

Equipment/materials rinsate blanks are samples which are obtained by running PFAS free water through or over decontaminated sampling equipment or materials including pump tubing, bailer, pump, etc. These samples are used to determine if decontamination procedures are adequate.

Trip blanks consist of a single set of sample containers filled at the laboratory with deionized. laboratory-grade water. The water used will be from the same source as that used for the laboratory method blank. The containers will be carried into the field and handled and transported in the same way as the samples collected that day. Analysis of the trip blank for VOCs is used to identify contamination from the air, shipping containers, or from other items coming in contact with the sample bottles. (The bottles holding the trip blanks will be not opened during this procedure). A complete set of trip blanks will be provided with each shipment of samples to the certified laboratory.

2.2.5 Surrogate Spike Analysis

For organic analyses, all samples and blanks will be spiked with surrogate compounds before purging or extraction in order to monitor preparation and analyses of samples. Surrogate spike recoveries shall fall within the advisory limits in accordance with the NY5DEC ASP protocols for samples falling within the quantification limits without dilution.

2.2.6 Matrix Spike / Matrix Spike Duplicate / Matrix Spike Blank (MS/MSDIMSB) Analysis

MS, MSD and MSB analyses will be performed to evaluate the matrix effect of the sample upon the analytical methodology along with the precision of the instrument by measuring recoveries. The MS / MSD / MSB samples will be analyzed for each group of samples of a similar matrix at a rate of one for every 20 field samples. The RPD will be calculated from the difference between the MS and MSD. Matrix spike blank analysis will be performed to indicate the appropriateness of the spiking solution(s) used for the MS/MSD.

2.2.7 Sampling Procedures Groundwater

Groundwater samples will be collected from two monitoring wells to collect post-dewatering groundwater samples for VOCs and SVOCs. Groundwater samples will be collected through the use of a pump with new HDPE tubing placed down the monitoring wells and any tubing connections using new silicone tubing. All pump tubing is to be replaced with new tubing between each monitoring well.

Groundwater samples will be collected in accordance with standard low-flow sampling procedures as follows:

- Record pump make & model on sampling form.
- Wear appropriate health and safety equipment as outlined in the Health and Safety Plan and PFAS sampling procedure documented above.
- Inspect each well for any damage or evidence of tampering and note condition in field logbook.
- Remove the well cap.

- Lay out plastic sheeting and place the monitoring, purging and sampling equipment on the sheeting.
- To avoid cross-contamination, do not let any downhole equipment touch the ground.
- Measure well headspace with a PID or FID and record the reading in the field logbook.
- A synoptic water level measurement round should be performed (in the shortest possible time) before any purging and sampling activities begin. Measure and record the depth to water using a water level meter or interface probe to the nearest 0.01 ft. Record the measurement in the field logbook. Do not measure the depth to the bottom of the well at this time (to avoid disturbing any sediment that may have accumulated). Obtain depth to bottom information from installation information in the field logbook or soil boring logs.
- Collect samples in order from wells with lowest contaminant concentration to highest concentration.
- Connect the HDPE tubing to the pump and lower the pump into the well to approximately the middle of the screen. The pump should be a minimum of two feet above the bottom of the well, as this may cause mobilization of any sediment present in the bottom of the well.
- Start the pump at its lowest speed setting and slowly increase the speed until discharge occurs. Check water level. Adjust pump speed until there is little or no water level drawdown (less than 0.3 feet). If the minimal drawdown that can be achieved exceeds 0.3 feet but remains stable, continue purging until indicator field parameters stabilize.
- There should be at least one foot of water over the end of the tubing / pump so there is no risk of entrapment of air in the sample. Pumping rates should be reduced to the minimum capabilities of the pump, if needed, to avoid purging the well dry. However, if the recharge rate of the well is very low and the well is purged dry, then wait until the well has recharged to a sufficient level and collect the appropriate volume of sample.
- During well purging, monitor indicator field parameters (temperature, specific conductance and pH) every three to five minutes (or less frequently, if appropriate). Note: during the early phase of purging emphasis should be put on minimizing and stabilizing pumping stress, and recording those adjustments. Purging is considered complete and sampling may begin when all the above indicator field parameters have stabilized. Stabilization is considered to be achieved when three consecutive readings, taken at three (3) to five (5) minute intervals, are within the following limits:
    - specific conductance (3%),
    - temperature (3%),
    - pH (± 0.1 unit)
    - If stability is not reached within a reasonable time period purging may be stopped and the sample collected. This should be noted on the sampling log.
- If groundwater samples are to be collected for PFAS analysis, collect PFAS samples first directly into laboratory supplied containers. PFAS samples are to be placed in a plastic bag and in a cooler separate from all other samples.
- If groundwater samples are to be collected for 1,4-dioxane analysis, groundwater samples for 1,4-dioxane analysis should be collected immediately following PFAS sample collection. Collect the samples using powder-less nitrile gloves in the laboratory supplied containers.
- VOC samples should be collected directly into pre-preserved sample containers. Fill all sample containers by allowing the pump discharge to flow gently down the inside of the container with minimal turbulence. Fill each container with sample to just overflowing so that no air bubbles are entrapped inside. Cap each bottle as it is filled.

- For non-VOC constituents, fill the laboratory containers to a level just below the top of the container.
- Label the samples, and record them on the chain of custody form. Place immediately into a cooler for shipment and maintain at 4°C.
- Remove the tubing from the well. The HDPE tubing must be discarded.

2.2.8 Equipment Decontamination Procedures

Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil.
- Rinse with PFAS free water.

- Wash with alconox® detergent solution and scrub
  (liquinox not suitable for 1,4-Dioxane sampling).
- Rinse with PFAS free water.
- Rinse with PFAS free water.

2.3 Accuracy

Accuracy is defined as the nearness of a real or the mean (x) of a set of results to the true value. Accuracy is assessed by means of reference samples and percent recoveries. Accuracy includes both precision and recovery and is expressed as percent recovery (% REC). The MS sample is used to determine the percent recovery. The matrix spike percent recovery (% REC) is calculated by the following equation:

$$\%REC = \frac{SSR - SR}{SA} \times 100$$

Where:
SSR = spike sample results
SR = sample results
SA = spike added from spiking mix

2.4 Precision

Precision is defined as the measurement of agreement of a set of replicate results among themselves without a Precision is defined as the measurement of agreement of a set of replicate results among themselves without assumption of any prior information as to the true result. Precision is assessed by means of duplicate/replicate sample analyses.

Analytical precision is expressed in terms of RPD. The RPD is calculated using the following formula:

$$RPD = \frac{D^1 - D^2}{(D^1 + D^2)/2} \times 100$$

Where:
RPD = relative percent difference
D^1 = first sample value
D^2 = second sample value (duplicate)

2.5 Sensitivity

The sensitivity objectives for this plan require that data generated by the analytical laboratory achieve quantification levels low enough to meet the required detection limits specified by NYSDEC ASP and to meet all site-specific standards, criteria and guidance values (SGCs) established for this project.

2.6 Representativeness

Representativeness is a measure of the relationship of an individual sample taken from a particular site to the remainder of that site and the relationship of a small aliquot of the sample (i.e., the one used in the actual analysis) to the sample remaining on site. The representativeness of samples is assured by adherence to sampling procedures described in the Remedial Investigation Work Plan.

2.7 Completeness

Completeness is a measure of the quantity of data obtained from a measurement system as compared to the amount of data expected from the measurement system. Completeness is defined as the percentage of all results that are not affected by failing QC qualifiers, and should be between 70 and 100% of all analyses performed. The objective of completeness in laboratory reporting is to provide a thorough data support package. The laboratory data package provides documentation of sample analysis and results in the form of summaries, QC data, and raw analytical data. The laboratory will be required to submit data packages that follow NYSDEC ASP Category B reporting format which, at a minimum, will include the following components:

1. All sample chain-of-custody forms.
2. The case narrative(s) presenting a discussion of any problems and/or procedural changes required during analyses. Also presented in the case narrative are sample summary forms.
3. Documentation demonstrating the laboratory's ability to attain the contract specified detection limits for all target analytes in all required matrices.
4. Tabulated target compound results and tentatively identified compounds.
5. Surrogate spike analysis results (organics).
6. Matrix spike/matrix spike duplicate/matrix spike blank results.
7. QC check sample and standard recovery results
8. Blank results (field, trip, and method).
9. Internal standard area and RT summary.

2.8 Laboratory Custody Procedures

The following elements are important for maintaining the field custody of samples:

- Sample identification
- Sample labels
- Custody records
- Shipping records
- Packaging procedures

Sample labels will be attached to all sampling bottles before field activities begin; each label will contain an identifying number. Each number will have a suffix that identifies the site and where the sample was taken. Approximate sampling locations will be marked on a map with a description of the sample location. The number, type of sample, and sample identification will be entered into the field logbook. A chain-of-custody form, initiated at the analytical laboratory will accompany the sample

bottles from the laboratory into the field. Upon receipt of the bottles and cooler, the sampler will sign and date the first received blank space. After each sample is collected and appropriately identified, entries will be made on the chain-of-custody form that will include:

- Site name and address
- Samplers' names and signatures

2.9 Sample Handling and Decontamination Procedures

Collected samples will be appropriately packaged, placed in coolers and shipped via overnight courier or delivered directly to the analytical laboratory by field personnel. Samples will be containerized in appropriate laboratory provided glassware and shipped in plastic coolers. Samples will be preserved through the use of water ice to maintain a temperature of 4^{o}C.

Dedicated disposable sampling materials will be used for soil samples. Field rinsate blanks will be prepared at the rate of 1 for every eight samples collected with a minimum of 1 sample per day per matrix. No field filtering will be conducted; any required filtration will be completed by the laboratory. Decontamination of non-dedicated sampling equipment will consist of the following:

- Gently tap or scrape to remove adhered soil;
- Rinse with tap water;
- Wash with alconox® detergent solution and scrub ;
- Rinse with tap water;
- Rinse with distilled or deionized water.

Prepare field blanks by pouring distilled or deionized water over decontaminated equipment and collecting the water in laboratory provided containers. Trip blanks will accompany samples each time they are transported to the laboratory. Matrix spike and matrix spike duplicates (MS/MSD) will be collected at the rate of one per 20 samples submitted to the laboratory and duplicate samples will be collected at a rate of one per ten samples submitted to the laboratory.

3.0 ANALYTICAL PROCEDURES

3.1 Laboratory Analysis

Samples will be analyzed by the NYSDOH ELAP laboratory for one or more of the following parameters: TCL VOCs by USEPA Method 8260C.

If any modifications or additions to the standard procedures are anticipated and if any nonstandard sample preparation or analytical protocol is to be used, the modifications and the nonstandard protocol will be explicitly defined and documented. Prior approval by AMC's PM will be necessary for any nonstandard analytical or sample preparation protocol used by the laboratory, i.e., dilution of samples or extracts by greater than a factor of five (5).

4.0 DATA REDUCTION, REVIEW, AND REPORTING

4.1 Overview

The process of data reduction, review, and reporting ensures the assessments or a conclusion based on the final data accurately reflects actual site conditions. This plan presents the specific procedures, methods, and format that will be employed for data reduction, review and reporting of each measurement parameter determined in the laboratory and field. Also described in this section is the process by which all data, reports, and work plans are proofed and checked for technical and numerical errors prior to final submission.

4.2 Data Reduction

Standard methods and references will be used as guidelines for data handling, reduction, validation, and reporting. All data for the project will be compiled and summarized with an independent verification at each step in the process to prevent transcription/typographical errors. Any computerized entry of data will also undergo verification review.

Sample analysis will be provided by a New York State certified environmental laboratory. Laboratory reports will include ASP category B deliverables for use in the preparation of a data usability summary report (DUSR). All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Analytical results shall be presented on standard NYSDEC ASP-B forms or equivalents, and include the dates the samples were received and analyzed, and the actual methodology used. Note that if waste characterization samples are analyzed they will be in results only format and will not be evaluated in the DUSR.

Laboratory QA/QC information required by the method protocols will be compiled, including the application of data QA/QC qualifiers as appropriate. In addition, laboratory worksheets, laboratory notebooks, chains-of-custody, instrument logs, standards records, calibration records, and maintenance records, as applicable, will be provided in the laboratory data packages to determine the validity of data. Specifics on internal laboratory data reduction protocols are identified in the laboratory's SOPs.

Following receipt of the laboratory analytical results by AMC, the data results will be compiled and presented in an appropriate tabular form. Where appropriate, the impacts of QA/QC qualifiers resulting from laboratory or external validation reviews will be assessed in terms of data usability. A resume for the proposed data validator is included in Attachment 2.

4.3 Laboratory Data Reporting

All sample data packages submitted by the analytical laboratory will be required to be reported in conformance to the NYSDEC ASP (7/2005), Category B data deliverable requirements as applicable to the method utilized. All results will be provided in accordance with the NYSDEC Environmental Information Management System (EIMS) electronic data deliverable (EDD) format. Note that waste characterization samples, if analyzed, will be in results only format and will not be evaluated in the DUSR.

5.0 CORRECTIVE ACTION

Review and implementation of systems and procedures may result in recommendations for corrective action. Any deviations from the specified procedures within approved project plans due to unexpected site-specific conditions shall warrant corrective action. All errors, deficiencies, or other problems shall be brought to the immediate attention of the AMC PM, who in turn shall contact the Quality Assurance/Data Quality Manager or his designee (if applicable).

Procedures have been established to ensure that conditions adverse to data quality are promptly investigated, evaluated and corrected. These procedures for review and implementation of a change are as follows:

- Define the problem.
- Investigate the cause of the problem.
- Develop a corrective action to eliminate the problem, in consultation with the personnel who defined the problem and who will implement the change.
- Complete the required form describing the change and its rationale (see below for form requirements).
- Obtain all required written approvals.
- Implement the corrective action.
- Verify that the change has eliminated the problem.

During the field investigation, all changes to the sampling program will be documented in field logs/sheets and the AMC PM advised.

If any problems occur with the laboratory or analyses, the laboratory must immediately notify the PM, who will consult with other project staff. All approved corrective actions shall be controlled and documented.

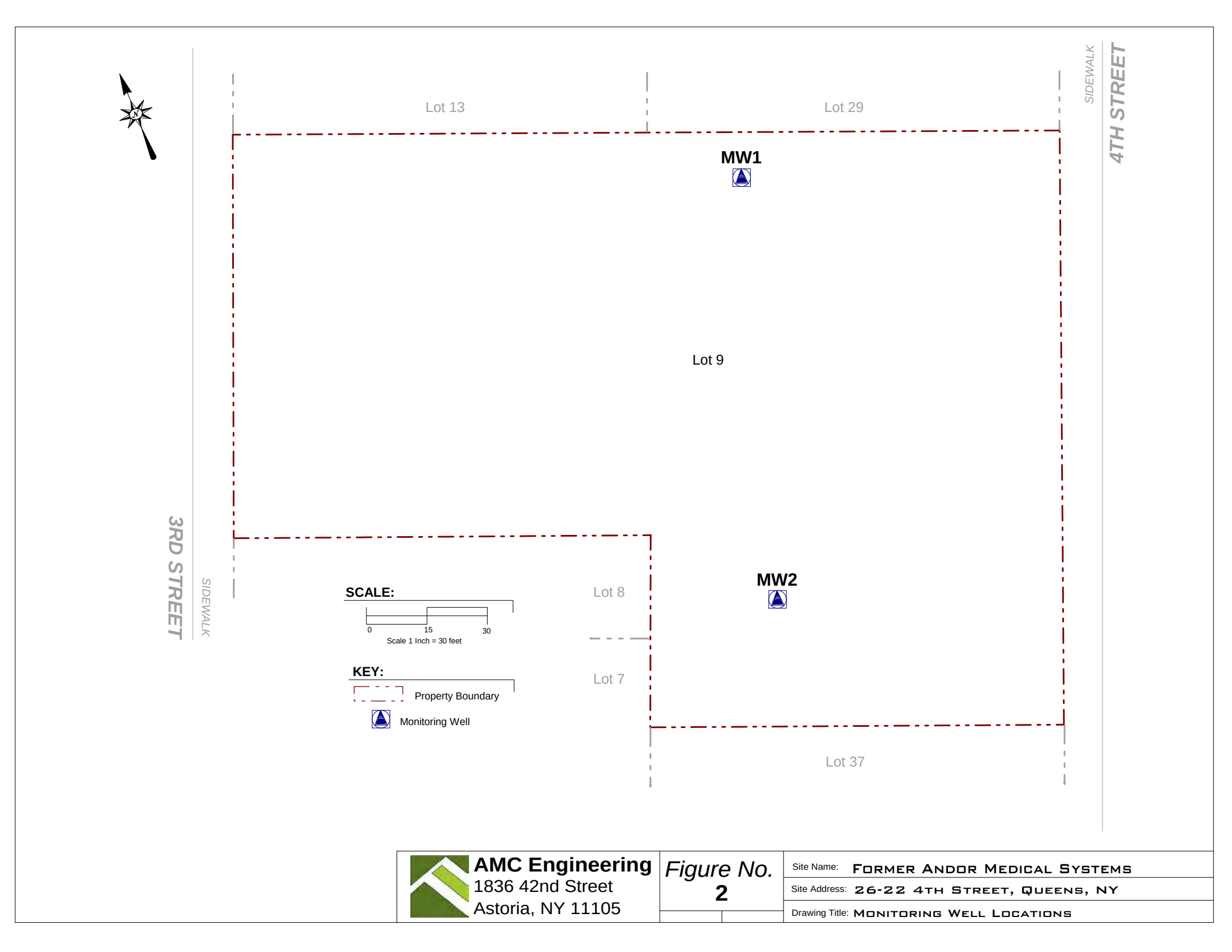
All corrective action documentation shall include an explanation of the problem and a proposed solution which will be maintained in the project file or associated logs. Each report must be approved by the necessary personnel (e.g., the PM) before implementation of the change occurs. The PM shall be responsible for controlling, tracking, implementing and distributing identified changes.

USGS Brooklyn, NY Quadrangle 1995, Contour Interval = 10 ft.

EBC
ENVIRONMENTAL BUSINESS CONSULTANTS
Phone 631.504.6000
Fax 631. 924 .2870

Figure No. 1

Site Name: FORMER ANDOR MEDICAL SYSTEMS
Site Address: 26-22 4TH STREET, QUEENS, NY
Drawing Title: SITE LOCATION MAP



AMC Engineering
1836 42nd Street
Astoria, NY 11105

Figure No. **2**

Site Name: FORMER ANDOR MEDICAL SYSTEMS
Site Address: 26-22 4TH STREET, QUEENS, NY
Drawing Title: MONITORING WELL LOCATIONS

TABLE 1
SUMMARY OF
SAMPLING PROGRAM RATIONALE AND ANALYSIS

Matrix	Location	Approximate Number of Samples	Frequency	Rationale for Sampling	Laboratory Analysis	Duplicates	Matrix Spikes	Spike Duplicates	Trip Blanks
Groundwater	MW1 / MW2	2	1 sample per monitoring well	Evaluate post-dewatering groundwater quality	TCL VOCs EPA Method 8260C	1 per day	1 per 20 samples	1 per 20 samples	1 per trip

TABLE 2
SAMPLE COLLECTION AND ANALYSIS PROTOCOLS

Sample Type	Matrix	Sampling Device	Parameter	Sample Container	Sample Preservation	Analytical Method#	CRQL / MDLH	Holding Time
Grab	Water	Pump tubing	VOCs	(3) 40 ml vials	Cool to 4o C 1:1 HCL	EPA Method 8260C	Compound specific (1-5 ug/L)	14 days

Notes:
All holding times listed are from Verified Time of Sample Receipt (VTSR) unless noted otherwise. * Holding time listed is from time of sample collection.
The number in parentheses in the "Sample Container" column denotes the number of containers needed.
Triple volume required when collected MS/MSD samples
The number of trip blanks are estimated.
CRQL / MDL = Contract Required Quantitation Limit / Method Detection Limit
NA = Not available or not applicable.

QAPP
ATTACHMENT 1

Sherri Pullar

Project Scientist

EDUCATION

B.S., State University of New York, New Paltz, NY

TRAINING / CERTIFICATIONS

EPA Guidance on QAPP/eQAPP

Training in ADR and EDMS

DOD database training

WORK HISTORY

Years with firm: 10 years

Years Experience: 25 years

Sherri specializes in data validation of inorganic, organic, and wet chemistry data including PFAS and 1,4-dioxane (including ADR and EDMS). Sherri has extensive experience preparing, supporting, and developing numerous quality assurance project plans, sampling analysis plans, quality assurance sampling plans, precision, accuracy, reproducibility, completeness, and comparability reports, and standard operating procedures for field sampling, work plans, remedial investigations, feasibility studies, remedial actions, health and safety plans, and reviewing data packages for quality control and acceptability. Sherri has extensive experience with database entry for DOD and NJDEP.

BACKGROUND / EXPERIENCE

Environmental Business Consultants (EBC), Numerous Projects, Ridge, NY Project Scientist. Worked on numerous sites with EBC to perform EPA Region II, level IV inorganic data validation, including metals and wet chemistry and organic data validation including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), pesticides, PCSs, 1,4-dioxane, and PFOS in soil, sediment, groundwater, and air samples.

U.S. Navy, LTM, Former Naval Air Warfare Center Trenton, West Trenton NJ Project Scientist. Performed inorganic data validation, including metals and wet chemistry and organic data validation including VOC and SVOC in groundwater, soil and air samples. Responsible for uploading data into Navy database.

U.S. Navy, LTM, Naval Weapons Industrial Reserve Plant NWIRP, Bedford MA Project Scientist. Performed inorganic data validation, including metals and wet chemistry and organic data validation including VOC and SVOC in groundwater, soil and air samples. Responsible for uploading data into Navy database.

USACE New England District, LTM, Former Fort Devens, MA Project Scientist. Performed organic data validation, including explosives and perchlorate using automated data validation (ADR) for groundwater and soil.

Northeastern Environmental Technologies (NEET), Numerous Projects, Ballston Spa, NY Project Scientist. Worked on two sites with NEET to perform EPA Region II, level IV inorganic data validation, including metals and wet chemistry and organic data validation including volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), in soil, groundwater, and air samples.

U.S. Navy, LTM, Naval Weapons Industrial Reserve Plant NWIRP, Calverton, NY Project Scientist. Performed inorganic data validation, including metals and wet chemistry and organic data validation including VOC and SVOC in groundwater and soil samples. Responsible for uploading data into Navy database.

Foote Mineral GMP, LTM, East Whiteland Township, PA. Project Scientist. Performed inorganic data validation, including metals and wet chemistry and organic data validation including VOC in groundwater samples. Responsible for uploading data into Navy database.

USACE New England District, LTM, Former Massachusetts Military Reservation, MA. Project Scientist. Performed organic data validation, including explosives and perchlorate and inorganic data validation, metals and wet chemistry using automated data validation (ADR) for soil and groundwater.

QAPP
ATTACHMENT 2

AMC Engineering PLLC
18-36 42nd Street
Astoria, NY 11105
Phone: (516) 417-8588

ARIEL CZEMERINSKI, P.E.
Email: Ariel@AMC-Engineering.com

SUMMARY:

New York State Professional Engineer. Chemical and Environmental Engineer, with 30 years of experience in the chemical and environmental areas. Areas of expertise include inspections and sign off on Large Scale Vapor Barrier Installations at Various NYC schools, Design and inspections of Sub Slab Depressurization Systems, wastewater treatment systems, Large scale dewatering system design for construction, process control and automation, process optimization, productivity improvement, quality systems, environmental compliance, Phase I Environmental Site Assessments, Phase II Environmental Investigations, Phase III: Remedial Activities, process and plant safety, and management of a production facility. Special Inspector with New York City Department of Buildings. Registered PE in NY.

Professional Experience:

AMC: 19 Years
Prior: 11 years

Education

Master of Science in Chemical Engineering, Columbia University, New York, NY, Feb. 1990.
Bachelor of Science in Chemical Engineering, University Of Buenos Aires, Buenos Aires, Argentina, May 1987

Areas of Expertise

- Vapor Intrusion - Barrier and Sub Slab Venting System Design
- Environmental Assessment Statements and Environmental Impact Assessments
- Remedial Program Design and Management
- Environmental Compliance, Clean Water Act, Clean Air Act, Hazardous Materials
- Dewatering & Treatment System Design
- SWPPP design and implementation. Preparation and Submittal of NOIs.
- NYCDEP Sewer Discharge Permitting
- Transfer Station Permitting and Compliance
- Chemical Process Design and Optimization
- Wastewater Treatment Systems and Permitting, SPDES, LI Well permit, Water Withdrawal Permit. Obtain permits from NYCDEP and NYSDEC.
- Air Permits and Registration
- Zoning Regulations and Permitting
- Safety and Environmental Training
- Waste Management Plans
- Professional Certifications
- OSHA 40-hr HAZWOPER
- OSHA 10-hr Construction Safety and Health

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Phone: (516) 417-8588

Project Experience

Project: Bergen Basin Sewer - CS-JA-BBS -Queens, NY
Project Description: NYC infrastructure (sewer, water) upgrade, drainage channel installation. Dewatering Design. Permits with NYCDEP and NYSDEC. Soil contaminated with petroleum requiring excavation, soil management and disposal under a Materials Handling Plan, Construction Health and Safety Plan. SWPPP design and implementation.
Client: JR Cruz - NYCDDC
Regulatory Authority: NYSDEC, NYCDEP
Role: Mr. Czemerinski served as the Environmental Consultant for the project.

Project: SER002326- Storm and Sanitary Sewers in Wardwell Avenue, Staten Island, New York
Project Description: NYC infrastructure (sewer, water) upgrade.
Dewatering Design. Permits with NYCDEP and NYSDEC. SWPPP design and implementation.
Client: E.E. Cruz - NYCDDC
Regulatory Authority: NYSDEC, NYCDEP
Role: Mr. Czemerinski served as the Environmental Consultant for the project.

Project: HED568-Installation of New 20" Subaqueous water main extension, and new 12" sub-aqueous high pressure gas main from the Bronx to Randall's Island, New York
Project Description: NYC infrastructure (gas, water) upgrade.
Soil contaminated with petroleum requiring excavation, soil management and disposal under a Materials Handling Plan, Construction Health and Safety Plan. Dewatering Design. Permits with NYCDEP and NYSDEC.
Client: E.E. Cruz - NYCDDC
Regulatory Authority: NYSDEC, NYCDEP
Role: Mr. Czemerinski served as the Environmental Consultant for the project.

Project: Domsey Fiber Corp. - 431 Kent Avenue, Brooklyn NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Express Builders
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: SE-807 –Construction of Storm and Sanitary Sewers and Water Main in 20th Ave between 126th St and US Bilkhead Line Area, College Point, Queens, NY
Project Description: NYC Residential infrastructure (sewer, water) upgrade, outfall reconstruction, Soil characterization, soil management and disposal under a Materials Handling Plan, Construction Health and Safety Plan and Community Air Monitoring Plan. SWPPP design and implementation, Public Participation Plan, Marine HASP, Dewatering Design and permit application.

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Client: EIC Associates
Regulatory Authority: NYCDDC
Role: Mr. Czemerinski served as the Environmental Consultant for the project.

Project: Springfield Gardens Residential Area BMP - Springfield Gardens, Queens, NY
Project Description: NYC Residential infrastructure (sewer, gas, water) upgrade, drainage channel installation and pond restoration. Soil contaminated with, petroleum and heavy metals requiring excavation, soil management and disposal under a Materials Handling Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: EIC Associates - NYCEDC
Regulatory Authority: NYSDEC, NYCParks
Role: Mr. Czemerinski served as the Environmental Consultant for the project.

Project: Former Domino Sugar Site - Kent Avenue, Brooklyn NY
Project Description: NYC E-Designation. Soil contaminated with semi-volatile organic compounds and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Two Trees Management
Regulatory Authority: NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former Uniforms For Industry Site - Jamaica Avenue, Queens NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, mop oil and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Arker Companies
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project

Project: Former Sunbelt Equipment Site – 25 Kent Avenue, Brooklyn, NY
Project Description: NYS Brownfield cleanup project. Soil contaminated with petroleum, and heavy metals and coal tar, requiring deep excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan, Dewatering Design and implementation, SWPPP design and implementation
Client: 19 Kent Acquisition LLC
Regulatory Authority: NYSDEC
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

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Astoria, NY 11105
Phone: (516) 417-8588

Project Experience

Project: Former Charles Pfizer & Co. Site - 407 Marcy Avenue, Brooklyn, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Rabsky Group
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former East Coast Industrial Uniforms Site - 39 Skillman Street, Brooklyn, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with chlorinated solvents, petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: Riverside Builders
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former BP Amoco Service Station Site - 1800 Southern Boulevard, Bronx, NY
Project Description: NYS Brownfield cleanup project / NYC E-Designation. Soil contaminated with petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: SoBro, Joy Construction
Regulatory Authority: NYSDEC, NYCOER
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

Project: Former Dico G Auto & Truck Repair Site - 3035 White Plains Road, Bronx, NY
Project Description: NYS Brownfield cleanup project. Soil contaminated with petroleum, and heavy metals requiring excavation, soil management and disposal under a Remedial Action Work Plan, Soil / Materials Management Plan, Construction Health and Safety Plan and Community Air Monitoring Plan
Client: The Arker Companies
Regulatory Authority: NYSDEC
Role: Mr. Czemerinski served as the Remedial Engineer for the project.

APPENDIX G

Site Management Forms

SITE INSPECTION CHECKLIST

Site Inspection Checklist

Former Andor Medical Systems - 26-22 4th Street, Astoria, NY

Date: _____ Time: _____

Inspector Name/Organization:_____

Visual Inspection of Groundwater Monitoring Wells

Inspect surrounding concrete pad, well cover, and well casing

		Conditions					
WELL ID	**Concrete Pad**	**Well Cover**	**Well Casing**	Replace Well Cap?		Replace Well Lock?		Comments
MW1				YES	NO	YES	NO	
MW2				YES	NO	YES	NO	

Repairs Needed and/or Maintenance at this time?

_____

_____

_____

_____

Signature: _____ Date: _____

APPENDIX H

Responsibilities of Owner and Remedial Party

RESPONSIBILITIES of
OWNER and REMEDIAL PARTY

Responsibilities

The responsibilities for implementing the Site Management Plan ("SMP") for the Former Andor Medical Systems site (the "Site"), number C241234, are divided between the site owner(s) and a Remedial Party, as defined below. The owner(s) is/are currently listed as:

4th Street Developments LLC
143 Division Avenue
Brooklyn, NY 11211

Solely for the purposes of this document and based upon the facts related to a particular site and the remedial program being carried out, the term 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. The RP is:

4th Street Developments LLC
143 Division Avenue
Brooklyn, NY 11211

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 the 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. In the event that 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) In the event 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 (ii) 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/ies. 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 2.4 of the SMP. A 60-Day Advance Notification Form and Instructions are found at http://www.dec.ny.gov/chemical/76250.html.
8) In accordance with the tenant notification law, within 15 days of receipt, the owner must supply a copy of any vapor intrusion data, that is produced with respect to structures and that exceeds NYSDOH or OSHA guidelines on the site, whether produced by the NYSDEC, RP, or owner, to the tenants on the property. The owner

must otherwise comply with the tenant and occupant notification provisions of Environmental Conservation Law Article 27, Title 24.

Remedial Party Responsibilities

1) The RP must follow the SMP provisions regarding any construction and/or excavation it undertakes at the site.
2) The RP shall report to the NYSDEC all activities required for remediation, operation, maintenance, monitoring, and reporting. Such reporting includes, but is not limited to, 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) Prior to a change in use that impacts the remedial system or requirements and/or responsibilities for implementing the SMP, the RP shall submit to the NYSDEC for approval an amended SMP.

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

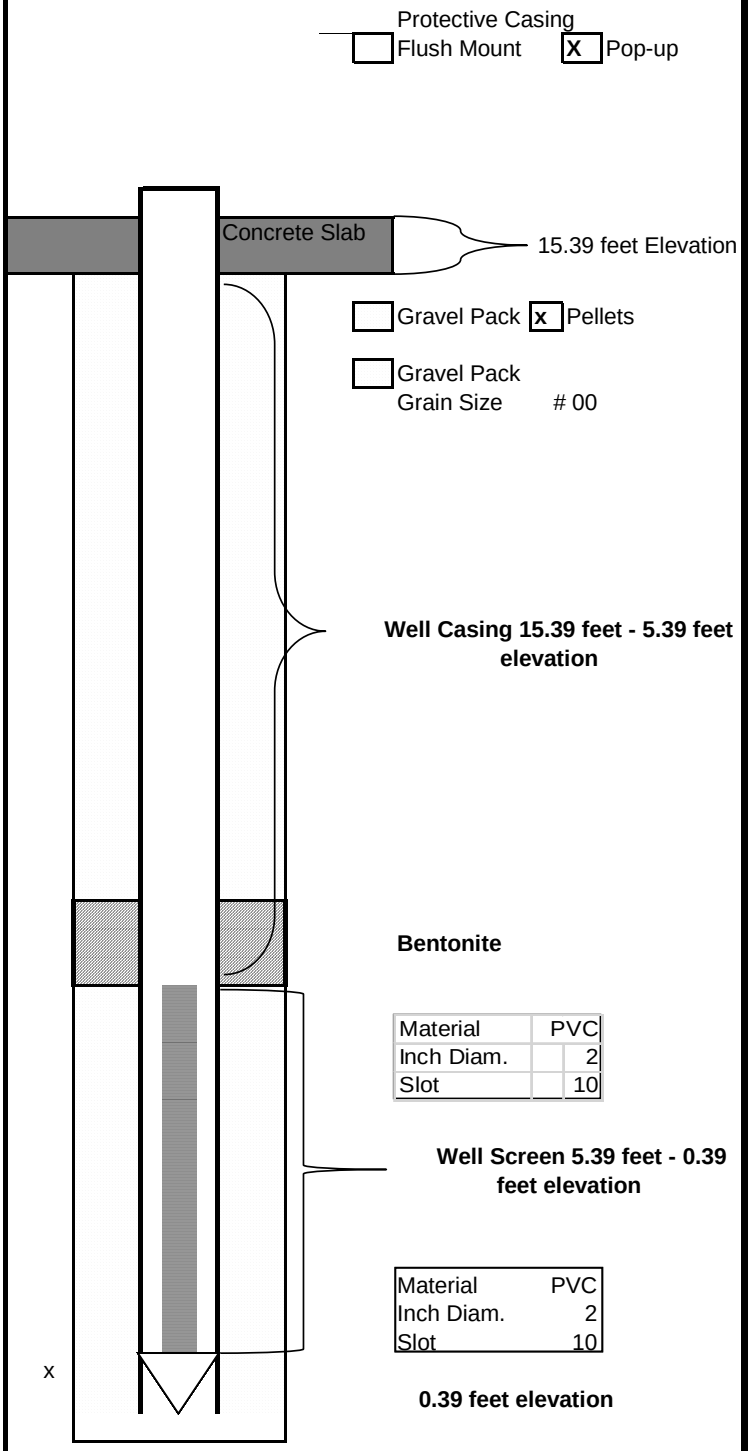
Monitoring Well Construction Logs and Elevation Data

ENVIRONMENTAL BUSINESS CONSULTANTS

GROUNDWATER MONITORING WELL

CONSTRUCTION LOG

MW-1



Note: Drawing is not to scale.
Depths are given in feet below land surface.

Monitoring Well No.: MW-1

Project: 26-30 4th Street

Depth to Groundwater: 10 feet elevation Date: 11/9/2021

Installation Depth: 15 feet

Survey Point Elevation: 1 feet

Installation Date: 2/16/2021

Drilling Contractor: Coastal Environmental solutions

Installation Method: Geoprobe 6610DT

Water Removed During Development:

Hydrogeologist: Douglas Benyei

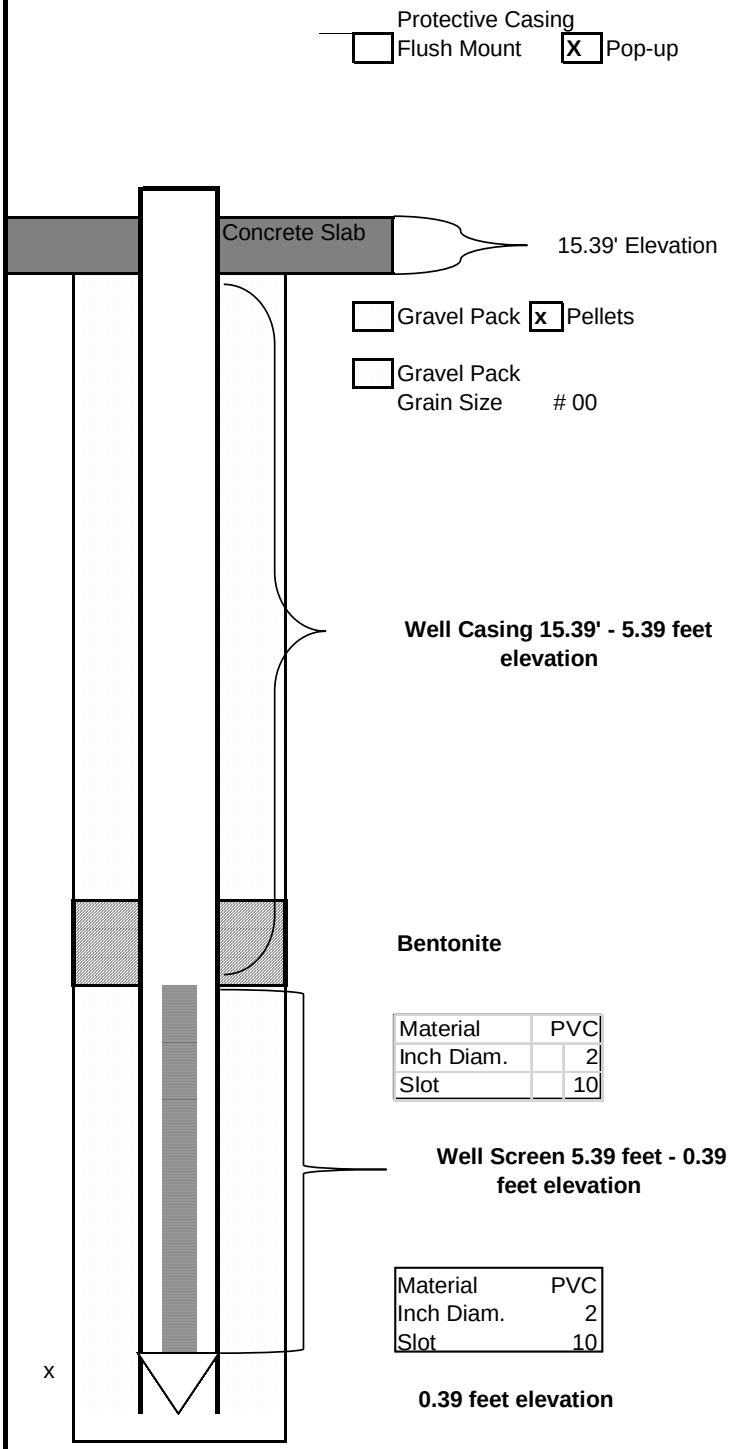
Company Name: EBC

GROUNDWATER MONITORING WELL

CONSTRUCTION LOG

MW-2

ENVIRONMENTAL BUSINESS CONSULTANTS



Note: Drawing is not to scale.
Depths are given in feet below land surface.

Monitoring Well No.: MW-2

Project: 26-30 4th Street

Depth to Groundwater: 9.5 feet elevation Date: 11/9/2021

Installation Depth: 15 feet

Survey Point Elevation: 1.5 feet

Installation Date: 2/16/2021

Drilling Contractor: Coastal Environmental solutions

Installation Method: Geoprobe 6610DT

Water Removed During Development:

Hydrogeologist: Douglas Benyei

Company Name: EBC

APPENDIX J

Remedial System Optimization Table of Contents

REMEDIAL SYSTEM OPTIMIZATION FOR FORMER ANDOR MEDICAL SYSTEMS

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4.3.1 Supply Management

4.3.2 Process Improvements or Changes

4.3.3 Optimize Monitoring Program

4.3.4 Maintenance and Repairs

4.4 RECOMMENDATIONS FOR IMPLEMENTATION