MAGNOLIA GARDENS

39-03 COLLEGE POINT BOULEVARD

QUEENS, NEW YORK

SITE MANAGEMENT PLAN

NYSDEC Site Number: C241273

AKRF Project Number: 230135

Prepared for:

Magnolia Gardens Developer Inc.
108 Norfolk Street
New York, NY 10002

Prepared by:

AKRF
440 Park Avenue South, 7th Floor
New York, New York 10016
212-696-0670

DECEMBER 2024

CERTIFICATION STATEMENT

I, Michelle Lapin, P.E., certify that I am currently a New York State registered Professional Engineer 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).

Michelle Lapin, NYS Professional Engineer #073934 P.E.

12/19/2024 DATE

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LIST OF ACRONYMS

Acronym	Definition
ACM	Asbestos Containing Material
AG	Air Guide
AGC	Annual Guideline Concentrations
ASP	Analytical Services Protocol
ASTM	American Society for Testing and Materials
AWQSGVs	Ambient Water Quality Standards and Guidance Values
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below Ground Surface
C&D	Construction and Demolition
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CMWP	Corrective Measures Work Plan
COC	Certificate of Completion
CP	Commissioner's Policy
CVOC	Chlorinated Volatile Organic Compound
DD	Decision Document
DER	Division of Environmental Remediation
DGA	Dense Grade Aggregate
DUSR	Data Usability Summary Report
EC	Engineering Control
GTDD	Groundwater Treatment Design Document
ECL	Environmental Conservation Law
EE	Environmental Easement
ELAP	New York State Environmental Laboratory Approval Program
EPA	United States Environmental Protection Agency
ESA	Environmental Site Assessment
EWP	Excavation Work Plan
FER	Final Engineering Report
GAC	Granular Activated Carbon
GPA	Gas Permeable Aggregate
HASP	Health and Safety Plan
IC	Institutional Control
inH_2O	Inches of Water
IRM	Interim Remedial Measures
IRMWP	Interim Remedial Measures Work Plan
LBP	Lead-based Paint
mg/m^3	Milligrams per Cubic Meter
MP	Monitoring Point

Acronym	Definition
MW	Monitoring Well
NY	New York
NYCDOHMH	New York City Department of Health and Mental Hygiene
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
P&ID	Process and Instrumentation Diagram
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
PCE	Tetrachloroethylene
PDI	Pre-design Investigation
PE	Professional Engineer
PFAS	Per- and Polyfluoroalkyl Substances
PID	Photoionization detector
ppm	Parts per Million
PRR	Periodic Review Report
PVC	Polyvinyl Chloride
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCRA	Resource Conservation and Recovery Act
REC	Recognized Environmental Condition
RI	Remedial Investigation
RIR	Remedial Investigation Report
RIWP	Remedial Investigation Work Plan
RRSCO	Restricted Residential Soil Cleanup Objective
RSO	Remedial Site Optimization
SB	Soil Boring
SCFM	Standard Cubic Feet per Minute
SCGs	Standards, Criteria, and Guidance
SGC	Short-term Guideline Concentrations
SI	Site Investigation
SIM	Selective Ion Monitoring
SMP	Site Management Plan
SOE	Support of Excavation
SPDES	State Pollutant Discharge Elimination System

Acronym	Definition
SSDS	Sub-slab Depressurization System
SSO	Site Safety Officer
SV	Soil Vapor
SVOC	Semivolatile Organic Compound
TAL	Target Analyte List
TCE	Trichloroethylene
TCL	Target Compound List
TCLP	Toxicity Characteristic Leaching Procedure
TOGS	Technical Operational and Guidance Series
UST	Underground Storage Tank
UUSCO	Unrestricted Use Soil Cleanup Objective
VFD	Variable-frequency Drive
VOC	Volatile Organic Compound

EXECUTIVE SUMMARY

The following **In-Text Table I** 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 (SMP):

In-Text Table I
Site Management Plan Summary

Site Identification:	BCP Site Identification No. C241273 39-03 College Point Boulevard Queens, New York
Institutional Controls (ICs):	1. The property may be used for restricted residential, commercial, and industrial use only, as set forth in the Environmental Easement.
	2. All ECs must be operated and maintained as specified in this SMP.
	3. All ECs must be inspected at a frequency and in a manner defined in this SMP.
	4. The use of groundwater underlying the property is prohibited without the necessary water quality treatment as determined by NYSDOH or the NYCDOHMH 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 NYSDEC.
	5. Groundwater and other environmental or public health monitoring must be performed as in this SMP.
	6. Data and information pertinent to site management of the Controlled Property must be reported at the frequency and in a manner as defined in this SMP.
	7. All future activities that will disturb the remaining contaminated material must be conducted in accordance with this SMP.
	8. Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this 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. Conduct one round of indoor air sampling from the building cellar following SSDS installation and building completion, and prior to occupancy.
	11. 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 in the Environmental Easement.
	12. Any on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from subsurface.
	13. In-ground vegetable gardens and farming on the Site are prohibited.
	14. The Site may not be used for a higher level of use, such as residential or unrestricted use, without an amendment to or the extinguishment of the Environmental Easement.

Institutional Controls (ICs):	15. The Environmental Easement may be extinguished if the Volunteer can demonstrate to the satisfaction of the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) that the ECs listed below are no longer required.
Engineering Controls (ECs):	1. Active Sub-Slab Depressurization System (SSDS)
	2. Site Cover System (Track 4 area)
	3. Groundwater Monitoring Wells

Inspections:	Frequency
1. Site Inspection	Annually
2. Active SSDS	Monthly (first year), annually (after first year)
Monitoring:	
1. SSDS Monitoring	Quarterly (first year), annually (after first year)
2. Groundwater Monitoring Wells	Quarterly for first year, then annually or needed
3. Indoor Air Sampling (in cellar)	Once following SSDS installation and prior to building occupancy
Maintenance:	
1. Active SSDS	Quarterly/As needed
Reporting:	
1. Periodic Review Report (PRR)	First PRR 16 months after receipt of the Certificate of Completion (COC). Annually thereafter.

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

1.0 INTRODUCTION

1.1 General

This Site Management Plan (SMP) is a required element of the remedial program for the approximately 0.31-acre, "Magnolia Gardens" project site located at 39-03 College Point Boulevard in Queens, New York (hereinafter referred to as the "Site"), also identified on the New York City Tax Map as Tax Block 4973, Lot 6. The Site was also formerly identified as 133-04 39th Avenue, Queens, New York. The Site is currently enrolled in the New York State (NYS) Brownfield Cleanup Program (BCP), Site No. C241273, which is administered by the New York State Department of Environmental Conservation (NYSDEC). A Site Location map is provided as **Figure 1**.

On December 21, 2023, Magnolia Gardens Developer Inc. entered into a Brownfield Cleanup Agreement (BCA) (Index No. C241273-11-23) with NYSDEC as a Volunteer to remediate the Site. The Site was remediated to a combination of a Track 2 Restricted Residential Soil Cleanup Objectives (RRSCOs) (0.2540-acre portion of Site) and Track 4 (0.0542-acre portion of Site) Cleanup in accordance with the NYSDEC-approved Remedial Action Work Plan (RAWP) and the Decision Document (DD), as described in this SMP. The Environmental Easement for the Site was executed by the Department on May 29, 2024 and recorded with the NYC Office of the City Register on July 10, 2024. The County Recording Identifier number for the recording is CFRN 2024070900172001. The boundaries of the Site are more fully described in the metes and bounds Site description that is part of the Environmental Easement (EE) 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 and Engineering Controls (ICs and ECs) have been incorporated into the Site remedy to control exposure to remaining contamination and ensure protection of public health and the environment. An EE granted to NYSDEC, and recorded with the Office of the City Register of the City of New York, requires compliance with this SMP and all ECs and ICs placed on the Site.

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

It is important to note that:

- This SMP details the Site-specific implementation procedures that are required by the EE. Failure to properly implement the SMP is a violation of the EE, which is grounds for revocation of the Certificate of Completion (COC); and
- Failure to comply with this SMP is also a violation of ECL, 6 New York Codes, Rules, and Regulations (NYCRR) Part 375, and the BCA for the Site (Index # C241273-11-23; Site No. C241273), and thereby subject to applicable penalties.

All reports associated with the Site can be viewed by contacting NYSDEC or its successor agency managing environmental issues in New York State. Contact lists for persons involved with the Site are provided in **In-Text Table II** and **Appendix B** of this SMP.

This SMP was prepared by AKRF, Inc. (AKRF), on behalf the Volunteer, in accordance with the requirements of NYSDEC's DER-10 ("Technical Guidance for Site Investigation and

Remediation"), dated May 2010, and the guidelines provided by NYSDEC. This SMP addresses the means for implementing the ICs and ECs that are required by the EE for the Site.

1.2 Revisions and Alterations

Revisions and alterations to this SMP will be proposed in writing to the NYSDEC project manager. NYSDEC can also make changes to the SMP or request revisions from the remedial party. Revisions will be necessary upon, but not limited to, the following occurring: a change in media monitoring requirements, upgrades to or shutdown of a remedial system, post-remedial removal of contaminated soil, or other significant change to the Site conditions. All approved alterations must conform with Article 145 Section 7209 of the Education Law regarding the application of professional seals and alterations. For example, any changes to as-built drawings must be stamped by a New York State Professional Engineer (P.E.). In accordance with the EE for the Site, 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 NYSDEC, as needed, in accordance with NYSDEC's DER-10, for the following reasons:

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

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

In-Text Table II on the following page includes contact information for the above notifications. The information on this table will be updated as necessary to provide accurate contact information. A full listing of Site-related contact information is provided in **Appendix B**.

In-Text Table II
Notifications*

Name	Contact Information	Required Notification**
Rafi Alam NYSDEC Project Manager	(518)-402-8606 rafi.alam@dec.ny.gov	All Notifications
Heidi Dudek NYSDEC Section Chief	(718) 482- 4679 heidi.dudek@dec.ny.gov	All Notifications
Kelly Lewandowski NYSDEC Site Control	(518) 402-9569 kelly.lewandowski@dec.ny.gov	Notifications 1, 8, and 9
Jim Sullivan NYSDOH Project Manager	(518) 402-5584 jim.sullivan@health.ny.gov	Notifications 4, 6, and 7

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

2.0 SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

2.1 Site Location and Description

The Site is located in Flushing, Queens County, New York, and is identified as Block 4973, Lot 6 on the New York City Tax Map. The Site location is shown on **Figure 1**. The Site is an approximately 0.31-acre parcel bounded to the north by 39th Avenue, followed by residential and commercial buildings; to the east by commercial buildings; to the south by a Mobil filling station; and to the west by College Point Boulevard, followed by a hotel, mall, and hardware store. A Site plan is provided as **Figure 2**. The boundaries of the Site are more fully described in the EE, provided as **Appendix A**. The owner and operator of the Site at the time of issuance of this SMP is:

Fee Owner: Magnolia Gardens Housing Development Fund Corporation
108 Norfolk Street
New York, NY 10002

Beneficial Owner: Magnolia Gardens Developer Inc.
108 Norfolk Street
New York, NY 10002

2.2 Physical Setting

2.2.1 Land Use

The Site is currently being redeveloped with a new mixed-use (residential and community facility) building with a cellar. The Site is zoned as C4-2 (commercial) and the new building will occupy a portion of the Site with the remainder being exterior landscaped area.

The properties adjoining the Site and in the surrounding neighborhood primarily include commercial and residential properties with some institutional uses, including a daycare. The Site is bounded: to the north by 39th Avenue, followed by residential and commercial buildings; to the east by commercial buildings; to the south by a Mobil filling station; and to the west by College Point Boulevard, followed by a hotel, mall, and hardware store.

The nearest sensitive receptor is a daycare (The League for Better Community Life) within a 500-foot radius of the development. No other sensitive receptors were identified within 500 feet. The nearest body of water is Flushing Creek, located approximately 790 feet west of the Site.

2.2.2 Geology

Soil encountered during the Remedial Investigation (RI) from the surface down, consisted of fill materials (including sand, silt, gravel, and small quantities of concrete, brick, and coal) to depths of approximately 15 to 35 feet below ground surface (bgs), underlain by apparent native soil. The apparent native soil included bands of silt, silty sand, silty clay, and clay interspersed with sandy soil at various depths. The silt and/or clay layers were generally first observed at approximately 15 to 40 feet bgs, with the shallowest clay layers noted in the northeastern corner of the Site. A geotechnical investigation indicated that silty clay extends to approximately 43.5 to 58.5 feet bgs, underlain by glacial till to depths up to 75 feet (the maximum geotechnical boring depth).

The surface topography generally slopes down toward the southwest. Based on the U.S. Geological Survey, Flushing, New York quadrangle map and a survey of the Site (Joseph Nicoletti Associates, March 1, 2016), elevation of the Site is approximately 45 feet above the North American Vertical Datum of 1988 (NAVD 88).

2.2.3 Hydrogeology

Based on Site-specific groundwater measurements, groundwater beneath the Site ranges from approximately 31.8 to 42.0 feet bgs. Groundwater flow delineation using permanent monitoring wells installed as part of AKRF's RI indicated apparent east-northeasterly groundwater flow beneath the Site. Similarly, delineation conducted using temporary wells as part of the 2017 Roux RI indicated easterly or northeasterly groundwater flow beneath the Site. However, historical delineation of groundwater flow on nearby sites (the south-adjacent filling station at 133-11 Roosevelt Avenue and a development at 133-31 39th Avenue, north of the Site across the street) indicated westerly or southwesterly groundwater flow toward Flushing Creek (the nearest body of water, approximately 790 feet away), which was consistent with the anticipated flow direction based on regional topography. The discrepancy between Site-specific groundwater flow measurements and regional groundwater flow may be due to clay layers restricting groundwater flow across the Site. Groundwater elevations and inferred groundwater flow direction are presented on **Figure 3.**

2.3 Investigation and Remedial History

Phase I Environmental Site Assessment (ESA) – 133-04 39th Avenue, Flushing, NY, G.C. Environmental, Inc., May 14, 2002

A Phase I ESA was conducted for the Site in May 2002 on behalf of Asian Americans for Equality (AAFE). At the time of this report, the southern portion of the Site was developed with a one-story, slab-on-grade, furniture warehouse with a single apartment, and the northern portion comprised a partially asphalt-paved parking lot. Some vegetated areas were noted in the report. The furniture warehouse reportedly occupied the on-site building since approximately 2001. The following Recognized Environmental Conditions (RECs) were identified:

- A petroleum spill (Spill # 9508694) was reported to NYSDEC for the Site in September 1995 due to the discovery of a 550-gallon fuel oil UST and contaminated soil. The UST and contaminated soil were reportedly removed, and the spill listing was closed in November 1995. A concrete patch in the central portion of the Site was noted to be the potential historical location of this UST.
- Historical automotive uses on the Site in 1956-1995.

Phase II Environmental Site Investigation Report – Asian Americans for Equality, 133-04 39th Avenue, Queens, NY, LBA, January 16, 2007

A subsurface (Phase II) investigation of the Site was conducted on behalf of the NYC School Construction Authority (NYCSCA) in 2007. At the time of the Phase II study, the historical building on the southern portion of the Site was a community center. The Site was being considered for redevelopment with a new building, which would have included a school. The Phase II study included a geophysical survey to identify potential USTs and utilities, advancement of 14 borings to depths of approximately 8 to 50 feet below grade, and collection of 20 soil samples, 3 groundwater samples, and 3 sub-slab vapor samples for laboratory analysis. The Phase II identified the following:

- The Phase II report noted that the 2002 Phase I ESA was updated in September 2006 by TAMS Consultants; however, the updated Phase I ESA report was not available. RECs identified by the 2006 Phase I ESA reportedly included: the 550-gallon underground storage tank (UST) removed from the Site in 1995; another potential on-site UST; historical on-site auto repair; and past and present off-site uses, including the south-adjacent filling station, other nearby filling stations and auto repair, film processing, and manufacturing.
- The geophysical survey identified no evidence of USTs at the Site.
- Fill materials (sand with small amounts of gravel, silt, brick, slag, and/or coal) were noted in 8 of the 14 borings to depths ranging from approximately 1 to 20 feet below grade. Apparent native on-site soil consisted of sand and silt. Groundwater was encountered approximately 35 to 39.5 feet below grade.
- Soil samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), target analyte list (TAL) metals, and polychlorinated biphenyls (PCBs). The VOCs acetone, 2-butanone, and total xylenes were detected in soil samples from a boring in the central portion of the Site (on the northern side of the historical building) at concentrations slightly above Unrestricted Use Soil Cleanup Objectives (UUSCOs), but well below Restricted Residential Soil Cleanup Objectives (RRSCOs). Soil in the 0-13 foot interval of this boring exhibited evidence of contamination [odors, staining, and photoionization detector (PID) readings up to 177 parts per million (ppm)]. Low levels of the chlorinated VOCs tetrachloroethylene (also called perchloroethylene, PCE) and trichloroethylene (TCE) were detected in four soil samples in the northeastern portion of the Site at various depths ranging from approximately 0.4 to 36 feet below grade; three of these samples (located within the historical building footprint) were collected above the water table, indicating a possible on-site source.

  One SVOC (naphthalene) was detected above its UUSCO, but well below its RRSCO, in a sample from one boring located in the central portion of the Site, possibly due to coal observed in this boring. Several metals were detected above UUSCOs and/or RRSCOs in 11 of the 20 soil samples, likely due to fill materials noted in the borings. Of note, lead was detected at a maximum concentration of 1,170 ppm in a sample from a boring in the southern portion of the Site. No PCBs were detected in the soil samples.

  Three composite waste characterization samples were collected from the 0-8 foot, 0-15 foot, and 15-20 foot intervals of two borings, and analyzed for corrosivity, ignitability, reactivity, toxicity, and Toxicity Characteristic Leaching Procedure (TCLP) VOCs, SVOCs, metals, pesticides and herbicides. No exceedances of USEPA hazardous waste criteria were identified.
- Groundwater samples were analyzed for VOCs, SVOCs, TAL metals (filtered), and PCBs. TCE was detected in two groundwater samples at concentrations up to 9.6 parts per billion (ppb), above the NYSDEC Class GA (drinking water) standard. Acetone, cis-1,2-dichloroethene, and toluene were detected in groundwater, but did not exceed Class GA standards. Several metals exceeded Class GA standards. No SVOCs were detected in groundwater above Class GA standards. No PCBs were detected in the samples.
- Sub-slab vapor samples were analyzed for VOCs. VOCs associated with petroleum and chlorinated solvents were detected. Of the chlorinated VOCs, PCE was detected at concentrations up to 220 micrograms per cubic meter ($\mu g/m^3$), TCE was detected at concentrations up to 59 $\mu g/m^3$, 1,1,1-trichloroethane (1,1,1-TCA) was detected at concentrations up to 34 $\mu g/m^3$, and carbon tetrachloride was detected at concentrations up to

33 µg/m^3. The maximum PCE and TCE concentrations exceeded their NYSDOH Air Guidance Values (AGVs) of 30 µg/m^3 and 5 µg/m^3, respectively.

Architectural Survey – Tax Block 4973, Lot 6, Map of Property at Flushing, Queens County, New York, Joseph Nicoletti Associates, March 1, 2016

A survey of the Site in 2016 indicated that the southern portion of the Site was developed with a one-story building. The northern portion included an asphalt- and concrete-paved parking lot. The Site elevation was approximately 45 feet above NAVD 1988, with a low spot (approximately 42 feet above NAVD 1988) in the southwestern corner.

Soil Disposal Characterization – 133-04 39th Avenue, Queens, New York, Roux, July 14, 2016 and Remedial Investigation Report – OER Project Number 16EH-N284Q, Asian Americans for Equality, Queens, NY, Roux, January 2017

An RI and waste characterization sampling were conducted at the Site in June 2016 on behalf of AAFE. Two reports (July 2016 waste characterization report and January 2017 RI report) were prepared to summarize the findings. At the time of the sampling in June 2016, the historical building on the southern portion of the Site was a community center; the RI noted that this building was demolished in December 2016. At that time, the Site was being considered for redevelopment with a new mixed-use building with two cellar levels. The RI/waste characterization sampling included advancement of 8 borings to depths of approximately 10 to 45 feet below grade and collection of 17 soil samples, 3 groundwater samples, and 5 on-site and 2 off-site soil vapor samples for laboratory analysis. The investigations identified the following:

- Fill materials (sand and silt with small amounts of gravel, clay, brick, glass, and slag) were noted to depths up to 8 feet below grade. Native on-site soil below the fill consisted of sand and silt with small amounts of gravel, clay and cobbles. A clay layer was noted approximately 20 feet below grade in the northeastern corner of the Site. Groundwater was encountered approximately 35 to 39 feet below grade.
- Soil samples were analyzed for VOCs, SVOCs, TAL metals, pesticides, and PCBs. TCE was detected at a concentration of 78 milligrams per kilogram (mg/kg), above its UUSCO and RRSCO, in soil sample RXSB-2 (0-2) in the northeastern corner of the Site (outside of the historical building footprint). No other VOCs were detected above UUSCOs or RRSCOs; however, other VOCs were detected at concentrations below UUSCOs, including PCE and/or TCE in three samples in the northern portion of the Site.

  SVOCs were not detected in any of the soil samples. Several metals were detected above UUSCOs and/or RRSCOs in 8 of the 17 soil samples. Of note, lead was detected at a maximum concentration of 1,300 ppm in a sample from a boring in the eastern portion of the Site. No PCBs were detected in the soil samples. Two pesticides (4,4'-DDE and 4,4'-DDT) were detected in four samples at concentrations above UUSCOs, but well below RRSCOs.
- Groundwater samples were analyzed for VOCs, SVOCs, TAL metals (total and filtered), pesticides, and PCBs. TCE was detected at a concentration of 14 ppb, above its Class GA standard, in the northeastern corner of the Site. Eleven metals exceeded class GA standards in the total metal analysis, and one metal (manganese) exceeded its Class GA standard in the dissolved metal analysis, reported to be possibly due to the surrounding fill materials and/or regional groundwater quality. No other analytes were detected above Class GA standards.
- Soil vapor samples were analyzed for VOCs. VOCs associated with petroleum and chlorinated solvents were detected in both on-site and off-site samples collected beneath the sidewalk north of the Site across 39th Avenue. Of the chlorinated VOCs, PCE, was detected in on-site samples

at concentrations up to 161 µg/m^3, TCE was detected at concentrations up to 147 µg/m^3, 1,1,1-TCA was detected at concentrations up to 1.25 µg/m^3, and carbon tetrachloride was detected at concentrations up to 4.83 µg/m^3. The maximum PCE and TCE concentrations exceeded their NYSDOH Air Guidance Values (AGVs) of 30 µg/m^3 and 5 µg/m^3, respectively. Lower VOC concentrations were detected in the off-site samples, with a maximum concentration of 6.85 µg/m^3 PCE and 13.1 µg/m^3 TCE; no 1,1,1-TCA or carbon tetrachloride were detected.

New York City Environmental Quality Review – EAS Short Form, 133-04 39th Avenue, Queens, New York, Roux, May 16, 2017

An EAS was prepared in May 2017 for proposed redevelopment of the Site with a mixed-use building with two cellar levels. The EAS summarized the previous investigations conducted for the Site and noted that, based on a meeting with OER in 2016, it was determined that the Site would enter into the NYC VCP, and that a Remedial Action Work Plan (RAWP) would be developed for implementation during the proposed construction.

Remedial Action Work Plan - Asian Americans for Equality, 133-04 39th Avenue, Queens, New York, NYC VCP Project No. 17CVCP014Q, Remedial Engineering, P.C., July 2017

A RAWP was prepared for the proposed redevelopment of the Site with a mixed-use building with two cellar levels. The proposed depth of excavation was approximately 32 to 35 feet below grade. The proposed cellar levels were to be occupied by a parking garage, which was to be ventilated separately from the above-grade floors. Due to the proposed foundation's proximity to the water table and the separate ventilation system for the cellar, a sub-slab depressurization system (SSDS) was not proposed as part of the vapor control measures for the new building. The proposed remedial measures included: a vapor barrier beneath new building foundations and behind below-grade sidewalls; proper soil handling and disposal procedures; environmental oversight and air monitoring during soil disturbance; post-excavation endpoint soil sampling; and preparation of a post-construction Remedial Action Report (RAR) to document remedial activities.

Preliminary Subsurface Investigation Report – AAFE Mixed-Use Building, Flushing, New York, MRCE, June 30, 2016, revised October 27, 2016, Final Subsurface Investigation Report – AAFE Mixed-Use Building, Flushing, New York, MRCE, January 13, 2017, and Updated Geotechnical Engineering Report – AAFE Mixed-Use Building, Queens, NY, MRCE, August 2, 2021

A geotechnical study was conducted on behalf of JCJ Architecture in June 2016 (updated in October 2016, January 2017, and August 2021). At the time of the 2016 report, the Site was developed with the historical one-story building; by January 2017, the building had been demolished (the demolition date was noted as November 2016). The geotechnical report reviewed boring logs from previous studies. In addition, five additional borings were advanced to approximately 47 to 75 feet, and two test pits were excavated to inspect adjacent building foundations. A piezometer was installed in a boring in the southeastern corner of the Site to monitor the groundwater elevation. The study indicated that fill materials (sand with small amounts of silt, clay, brick, and gravel) were encountered to depths of approximately 8 to 13.5 feet below grade. The fill was underlain by sand with silt and gravel to approximately 23.5 to 48.5 feet below grade, underlain in turn by silty clay to approximately 43.5 to 58.5 feet below grade, underlain in turn by glacial till. Groundwater was encountered approximately 35 to 36.5 feet below grade.

Phase I ESA – 133-04 39th Avenue, Flushing, NY, AKRF, August 2021

A Phase I ESA was conducted for the Site in August 2021 on behalf of 4NYC Housing Inc. At the time of this report, the Site was an unpaved, vacant lot. The ESA identified the following RECs (first three bullets) and a Historical REC (HREC) (fourth bullet):

- A historical building on the southern portion of the Site was used as an auto repair shop circa 1961-2001; this building was subsequently a warehouse and a community center, which was demolished in 2016. Subsurface investigations conducted at the Site in 2007 and 2016 included a geophysical survey to identify potential USTs and utilities, and collection of soil, groundwater, and soil vapor samples for laboratory analysis. No evidence of USTs was identified at the Site. Soil in a 2007 boring within the historical building exhibited evidence of petroleum contamination (odors, staining, and elevated PID readings), but laboratory analysis of soil samples collected in 2007 and 2016 indicated no evidence of significant petroleum contamination in this boring or elsewhere at the Site. Metals were detected at elevated concentrations in soil samples, with lead concentrations up to 1,300 ppm. Soil vapor contained VOCs associated with petroleum and chlorinated solvents. VOCs associated with chlorinated solvents were also detected in shallow soil in the northeastern portion of the Site (indicating a possible on-site source) and in groundwater.
- Evidence of dumping (trash, plastic bags with unknown contents, traffic cones, concrete fragments, and rodent traps) was observed on the Site. No chemical containers, spills, staining, or other evidence of a release were observed.
- Historical off-site uses with some potential to affect the Site included a south-adjacent filling station, an east-adjacent medical instrument factory, auto-related uses (repair shops, filling stations, and garages with gasoline USTs), appliance repair, manufacturing, and film processing. The south-adjacent filling station was observed during the ESA reconnaissance and was identified in regulatory databases with closed-status petroleum spills, a petroleum bulk storage (PBS) listing, and hazardous waste generation. The historical east-adjacent factory was identified as a hazardous waste generator. Additional hazardous waste generators, spill listings, PBS facilities, historic auto facilities, and a historic dry cleaner were identified in close proximity to the Site.
- Spill #9508694 was reported to the New York State Department of Environmental Conservation (NYSDEC) in October 1995 on the Site due to the discovery of contaminated soil during the removal of a 550-gallon fuel oil UST. The listing indicated that affected soil was removed for off-site disposal. Post-excavation sampling reportedly identified no significant residual contamination. Subsequent soil and groundwater sampling in 2007 and 2016 also identified no significant residual contamination at the former UST location. The spill listing was closed in November 1995.

Remedial Investigation Report – 39-03 College Point Boulevard, Queens, NY, AKRF, August 2022, updated January 2024

Soil, groundwater, and soil vapor samples were collected by AKRF and analyzed as part of a Remedial Investigation (RI) conducted between December 2021 and October 2023. Field activities were conducted between December 20 and 22, 2021, between June 15 and 20, 2022, and between October 17 and 31, 2023. The Remedial Investigation Report (RIR) also summarized the findings of previous remedial investigations [Louis Berger & Assoc., P.C. (LBA), January 16, 2007, and Roux Associates, Inc. (Roux), January 2017]. Samples were collected as follows:

- The LBA investigation entailed: collection of 22 grab soil samples from 14 soil borings; collection of 3 composite soil samples from 2 soil borings for waste characterization; collection of 3 groundwater samples from temporary wells; and collection of 3 soil vapor samples from temporary probes.
- The Roux investigation entailed: collection of 16 grab soil samples from 8 soil borings; collection of 3 groundwater samples from temporary wells; and collection of 5 on-site soil

vapor samples, and 2 soil vapor samples from the sidewalk to the north across 39th Avenue from temporary probes.

AKRF's initial RI entailed: collection of 25 grab soil samples from 16 soil borings; collection of 2 groundwater samples from temporary wells; collection of 3 groundwater samples [plus quality assurance/quality control (QA/QC) duplicates] from 3 permanent groundwater monitoring wells (2 in adjacent sidewalks and 1 on the eastern side of the Site); and collection of 10 soil vapor samples from 7 temporary soil vapor probes installed across the Site, and 3 temporary probes in adjacent sidewalks.

AKRF's Supplemental RI included collection of 45 grab samples from 21 soil borings, and the collection of 7 groundwater samples 7 from temporary wells.

The LBA grab soil samples were analyzed for volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260, semi-volatile organic compounds (SVOCs) by EPA Method 8270, Target Analyte List (TAL) metals by the EPA Method 6000/7000 series, and polychlorinated biphenyls (PCBs) by EPA Method 8082. The composite soil samples were analyzed for corrosivity, ignitability, reactivity, and Toxicity Characteristic Leaching Procedure (TCLP) VOCs, SVOCs, metals, pesticides and herbicides. The LBA groundwater samples were analyzed for VOCs by EPA Method 8260, SVOCs EPA Method 8270, TAL metals (dissolved) by the EPA Method 6000/7000 series, and PCBs by EPA Method 8082. The soil vapor samples were analyzed for VOCs by EPA Method TO-15.

The Roux soil samples were analyzed for VOCs (including the emerging contaminant 1,4-dioxane, analyzed as a VOC) by EPA Method 8260, SVOCs by EPA Method 8270, TAL metals by the EPA Method 6000/7000 series, pesticides by EPA Method 8081, and PCBs by EPA Method 8082. Groundwater samples were analyzed for VOCs (including 1,4-dioxane) by EPA Method 8260, SVOCs by EPA Method 8270, TAL metals (total and dissolved) by the EPA Method 6000/7000 series, pesticides by EPA Method 8081, and PCBs by EPA Method 8082. The soil vapor samples were analyzed for VOCs by EPA Method TO-15.

The AKRF soil samples were analyzed for VOCs by EPA Method 8260, SVOCs (including 1,4-dioxane, analyzed as an SVOC) by EPA Method 8270, TAL metals by the EPA Method 6000/7000 series, hexavalent chromium by EPA Method 7196A, pesticides by EPA Method 8081, and PCBs by EPA Method 8082. One soil sample was analyzed for the emerging contaminants per- and polyfluoroalkyl substances (PFAS) by EPA Method 537. Groundwater samples from temporary wells were analyzed for VOCs by EPA Method 8260, SVOCs (including 1,4-dioxane) by EPA Method 8270, and PFAS by EPA Method 537. Due to insufficient groundwater volume, only one of these two samples was analyzed for TAL metals (total and dissolved) by the EPA Method 6000/7000 series, pesticides by EPA Method 8081, and PCBs by EPA Method 8082. Groundwater samples from the permanent monitoring wells were analyzed for VOCs by EPA Method 8260. The soil vapor samples were analyzed for VOCs by EPA Method TO-15. The AKRF RI also summarized the findings of waste characterization sampling conducted at the Site (AKRF, August 2022).

Soil sample analytical results for VOCs, SVOCs, PCBs, pesticides, and TAL metals were compared to the 6 New York Codes, Rules, and Regulations (NYCRR) Restricted Residential Soil Cleanup Objectives (RRSCOs) and Unrestricted Use Soil Cleanup Objectives (UUSCOs). Analytical results for the 21 -compound PFAS list were compared to Guidance Values in the Sampling, Analysis and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs document, issued in April 2023. Groundwater sample analytical results for VOCs, SVOCs, PCBs, pesticides, PFAS, and TAL metals were compared to the NYSDEC Ambient Water Quality Standards and Guidance Values (AWQSGVs). Groundwater analytical results for 1,4-

dioxane were compared to the New York State Department of Health (NYSDOH) August 2020 Maximum Contaminant Level (MCL) of 1 microgram per kilogram (µg/kg). These standards are for drinking water, although groundwater in this area of Queens is not used as a potable source. There were no regulatory or published guidance values for VOCs in soil vapor at the time; therefore, the results of the soil vapor samples were not compared to any standards.

Subsurface conditions noted during the RI and previous investigations included: fill materials (including sand, silt, gravel, and small quantities of concrete, brick, and coal) to depths up to approximately 15 to 35 feet below ground surface (bgs), underlain by apparent native soil. The apparent native soil included bands of silt, silty sand, silty clay, and clay interspersed with sandy soil at various depths. The silt and/or clay layers were generally first observed approximately 15 to 40 feet bgs, with the shallowest clay layers noted in the northeastern corner of the Site. Bedrock was not encountered during the investigations. A geotechnical investigation indicated that silty clay extended to approximately 43.5 to 58.5 feet bgs, underlain by glacial till to depths up to 75 feet (the maximum geotechnical boring depth).

Based on Site-specific groundwater measurements, groundwater beneath the Site ranges from approximately 31.8 to 42.0 feet bgs. Groundwater flow delineation using permanent monitoring wells installed as part of AKRF's RI indicated apparent east-northeasterly groundwater flow beneath the Site. Similarly, delineation conducted using temporary wells as part of the 2017 Roux RI indicated easterly or northeasterly groundwater flow beneath the Site. However, historical delineation of groundwater flow on nearby sites (the south-adjacent filling station at 133-11 Roosevelt Avenue, and a development at 133-31 39th Avenue, north of the Site across the street) indicated westerly or southwesterly groundwater flow toward Flushing Creek (the nearest body of water, approximately 790 feet away), which was consistent with the anticipated flow direction based on regional topography. The discrepancy between site-specific groundwater flow measurements and regional groundwater flow may be due to clay layers restricting groundwater flow across the Site. Groundwater elevations and inferred groundwater flow direction were presented in Figure 3 of the RIR, and also included as Figure 3 of this SMP.

Sample locations from AKRF's RI and previous investigations are shown on Figure 2 in the RIR, and also included as Figure 2 of this SMP. The complete analytical results for soil, groundwater, and soil vapor samples collected during AKRF's RI and previous investigations are presented in attached Tables 1 through 6, 7 through 13, and 14, respectively in the RIR. Concentration maps showing analytes detected above applicable standards and guidance values for soil are presented on Figures 4A and 4B, and for groundwater are presented on Figures 5A and 5B in the RIR. Soil vapor sample detections are presented on Figures 6A and 6B in the RIR.

Based on the RI and previous investigation results, the nature and extent of contaminated soil, groundwater, and soil vapor present at the Site had been determined. The primary COCs at the Site include: VOCs, the polycyclic aromatic hydrocarbon (PAH) (a class of SVOC) naphthalene, pesticides, and metals in soil/fill above RRSCOs and/or UUSCOs; lead exceeding EPA hazardous waste criteria in soil; VOCs, PAHs, PFAS, and metals in groundwater exceeding AWQSGVs; and VOCs [primarily chlorinated VOCs (CVOCs)] in soil vapor. Three borings in the central portion of the Site exhibited field evidence of contamination [e.g., odors, staining, and/or elevated photoionization detector (PID) readings], but no evidence of non-aqueous phase liquid (NAPL) was identified.

Detections of petroleum-related VOCs and naphthalene in soil appeared to be associated with some combination of historical low-level petroleum contamination in the central portion of the Site and fill materials (coal fragments were noted in the boring where naphthalene was detected), with no specific source determined. CVOCs were detected in shallow Site soil, generally in the northeastern

portion of the Site and generally at low levels, but with one hotspot containing TCE at a concentration of 78 milligrams per kilogram (mg/kg), above its UUSCO of 0.47 mg/kg, and RRSCO of 21 mg/kg. The TCE hotspot was delineated to an approximately 20-foot by 20-foot area around RXSB-2 (0-5 foot depth interval). Although the presence of CVOCs may have been associated with historical on-site auto repair, no records of CVOC use or hazardous waste generation on-site were identified. Pesticides and metals in soil/fill are likely related to historical on-site uses and/or the presence of fill at the Site. Two hotspots of soil with leachable lead concentrations exceeding EPA criteria for hazardous waste were identified and delineated to an approximately 10-foot by 10-foot area around boring AKRF-SB-04/WC-2 (8-16 foot interval) and an approximately 10-foot by 10-foot area around boring AKRF-SB-05/WC-3 (0-8 foot interval). The presence of VOCs and PAHs in groundwater may be associated with the historical low-level petroleum contamination in the central portion of the Site (for petroleum-related VOCs and PAHs), CVOC detections in on-site soil (for chlorinated VOCs), and/or off-site sources (of note, the east-adjacent property was developed historically with a medical instrument factory). The elevated detections of metals in groundwater are most likely related to regional groundwater contamination as opposed to an on-site release. The elevated detections of PFAS in groundwater may be related to historical usage at the Site or to regional groundwater contamination. The VOCs detected in soil vapor may be associated with some combination of on-site and off-site sources.

Soil Waste Characterization Results – Magnolia Gardens, 39-03 College Point Boulevard, Queens, NY, AKRF, June 14, 2023.

This work was conducted for waste characterization, which does not typically require regulatory agency approval. Thus, no Work Plan was prepared. The Site was separated into eight waste characterization grids (WC-1 through WC-8). In December 2021, AKRF oversaw the advancement of 4 waste characterization soil borings to obtain representative soil samples for laboratory analysis. In July 2022, AKRF oversaw the advancement of 16 waste characterization soil borings to delineate the TCE and lead hotspots discovered by previous sampling. In April 2023, additional soil sampling was requested by the proposed soil broker based on an increase in anticipated disposal volume, and for additional delineation of the hazardous TCE and lead hotspots. AKRF oversaw the advancement of 18 waste characterization soil borings. The sampling identified and delineated two hazardous lead hotspots and one hazardous TCE hotspot.

Remedial Action Work Plan, 39-03 College Point Boulevard, Queens, New York, AKRF, Inc., February 2024

AKRF prepared a RAWP in February 2022, which outlined the remedial activities and cleanup objectives for the Site. The RAWP was approved by NYSDEC on February 29, 2024. The RAWP proposed excavation and removal of soil/fill exceeding the RRSCOs within the upper 15 feet to achieve a Track 2 Cleanup (within the footprint of the proposed building and adjacent sunken yard) and removal of a minimum of 2 feet of soil in the exterior areas to achieve a Track 4; and excavation and removal of any unknown USTs encountered during the excavation in accordance with applicable federal, state, and local laws and regulations, as defined by 6 NYCRR Part 375-6.8. The remedy also included the installation of ICs/ECs, including the installation of an active sub-slab depressurization system (SSDS), performance of an in-situ groundwater treatment program, and construction of a composite cover system in the Track 4 area to address the contamination.

Groundwater Treatment Design Document, 39-03 College Point Boulevard, Queens, New York, AKRF, Inc., April 2024, Revised June 2024

AKRF prepared a Groundwater Treatment Design Document (GTDD) in April 2024, revised in June 2024, describing the groundwater treatment program, including injection and monitoring well

installations and requirements for groundwater monitoring and the injection program. The GTDD was approved by NYSDEC in a letter dated June 14, 2024.

2.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site, as listed in the Decision Document (DD) dated February 29, 2024, are as follows:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

2.5 Summary of Remedial Actions

Remedial actions were performed at the Site in accordance with the NYSDEC-approved RAWP dated February 2024, the February 2024 DD and all applicable federal, state, and local rules and regulations. Remedial activities during the BCP remedy phase began at the Site in March 2024 and were completed in August 2024.

The following is a summary of the remedial actions performed at the Site under the BCP:

2.5.1 Soil Excavation and Off-Site Disposal

On-site contaminated soils in the upper 15 feet in the Track 2 area and upper 2 feet in the Track 4 area were excavated and transported off-site for proper disposal at approved facilities to achieve a Track 2 and Track 4 Cleanup (**Figure 4** shows the extent of remedial excavation). A total of 15,098.02 tons of soil were excavated and disposed off-site. During all excavation and ground intrusive activities, AKRF conducted real-time air monitoring for particulates and VOCs in accordance with a NYSDEC-approved Community Air Monitoring Plan (CAMP), including a Special Requirements CAMP to be implemented when work occurred within 20 feet of any potentially exposed individuals or structures.

Post-excavation soil endpoint samples were collected across the Site in accordance with the RAWP to evaluate performance of the remedy. The endpoint sample analytical results are included in Attached **Tables 1 through 6**, and the endpoint sampling locations are shown on **Figure 5**.

2.5.2 Stone/Gravel Import

A total of 1,544.60 tons of crushed virgin stone were imported to backfill behind subgrade foundation walls, use as part of the gas permeable aggregate (GPA) layer below the concrete slab, and to construct the Site cover system (in Track 4 area, minimum 2-foot layer); and 170 cubic yards of foam glass aggregate were imported and used as part of the GPA layer and installed below the concrete slab. Import approvals are provided in **Appendix C**.

2.5.3 Active Sub-Slab Depressurization System (SSDS)

Installation of a vapor barrier/waterproofing membrane and sub-slab components of an active SSDS were completed in August 2024 as a mitigation measure against potential soil vapors accumulating within the building. The SSDS layout plan is shown on **Figure 6**. Although not an engineering control, a vapor barrier was installed beneath the foundation slab (20-mil Stego Wrap) and behind subgrade walls (73-mil Precon Membrane) as an element of construction. As-Builts of the sub-slab SSDS components are enclosed as **Appendix D**.

2.5.4 In-Situ Chemical Oxidation (ISCO)

As part of the remedial action, an in-situ chemical oxidation (ISCO) treatment program was completed in the northeastern portion of the Site to treat elevated trichloroethylene (TCE) concentrations identified in groundwater. Sodium permanganate was used for conducting the ISCO treatment. AKRF retained In-Situ Oxidative Technologies, Inc. (ISOTEC) to conduct the ISCO treatment targeting on an approximately 1,600-square foot area where the highest concentrations of TCE were identified during the remedial investigation.

The extent of the groundwater treatment area is shown on **Figure 7.**

2.5.5 Site Cover System

To prevent direct contact with any residual contaminated soil, a Site cover system was installed in the Track 4 portion of the Site. The cover system consisted of a minimum of two feet of imported crushed virgin stone, installed across the exterior landscaped areas, underlain by a demarcation layer (filter fabric). The extent of the Site cover system is provided as **Figure 8**.

2.6 Remaining Contamination

2.6.1 Soil

Soil/fill was characterized during previous investigations prior to entering the BCP and during the RI conducted as part of the BCP. The soil exceeding the Track 2 RRSCOs in the upper 15 feet of the Site was excavated and removed and a minimum of 2 feet of soil was excavated and removed from the Track 4 areas (exterior landscaped areas). Soil endpoint samples were collected following the soil removal (from excavation bottom and sidewalls) and the results are provided in **Attached Tables 1 through 6**. Some of the endpoint sample results exceeded the RRSCOs. A black demarcation barrier (Mirafi

140NL) was placed on top of the subgrade soil prior to backfilling with any imported materials. The endpoint sample locations and the sample concentrations exceeding the RRSCOs are shown on **Figure 5.**

2.6.2 Groundwater

Groundwater quality was characterized during previous investigations prior to entering the BCP and during the RI conducted as part of the BCP. The groundwater beneath the Site was found to have concentrations of CVOCs (specifically TCE) above the NYSDEC Technical Operational and Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values (AWQSGVs) and groundwater treatment was included as a component of the Decision Document. A groundwater treatment program was completed at the Site to treat elevated concentrations of TCE; however, low-level concentrations exceeding the AWQSGVs still remain. The pre-remediation and post-remediation concentrations of CVOCs are provided in **Attached Table 7**. Residual groundwater TCE concentrations are shown on **Figure 7**.

2.6.3 Sub-Slab Soil Vapor

Based on the findings of the RI, contaminated soil vapor remains at the Site. The contaminated soil vapor will be addressed by a vapor mitigation system, which consists of a vapor barrier membrane and the active SSDS installed below the entire building footprint (**see Figure 6** for details). The active SSDS will prevent vapor intrusion into the new building.

3.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

3.1 General

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

This plan provides:

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

3.2 Institutional Controls

A series of ICs is required by NYCDEC's February 2024 DD to: (1) implement, maintain, and monitor ECs; (2) prevent future exposure to remaining contamination; and (3) limit the use and development of the Site to restricted residential, commercial, and/or industrial uses only. Adherence to these ICs on the Site is required by the EE and will be implemented under this SMP. ICs identified in the EE may not be discontinued without an amendment to or extinguishment of the EE. The IC boundaries are shown on **Figure 2**. These ICs are:

- The property may be used for restricted residential, commercial, and industrial use only, as set forth in the Environmental Easement.
- All ECs must be operated and maintained as specified in this SMP.
- All ECs must be inspected at a frequency and in a manner defined in the SMP.
- The use of groundwater underlying the property is prohibited without the necessary water quality treatment as determined by NYSDOH or the NYCDOHMH 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 NYSDEC.
- Any soil vapor and other environmental or public health monitoring must be performed as defined in this SMP.
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP.
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP.

- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP.
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP.
- Access to the Site must be provided to agents, employees, or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the EE.
- Any on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from subsurface.
- In-ground vegetable gardens and farming on the Site are prohibited.
- One round of IA sampling will be completed following building completion and prior to occupancy to assess the effectiveness of the installed active SSDS system.
- The Site may not be used for a higher level of use, such as residential or unrestricted use, without an amendment to, or the extinguishment of, the Environmental Easement.
- The Environmental Easement may be extinguished if the Volunteer can demonstrate to the satisfaction of the New York State Department of Environmental Conservation (NYSDEC) and the New York State Department of Health (NYSDOH) that the ECs listed below are no longer required.

3.3 Engineering Controls

3.3.1 SSDS

An active SSDS will be operated to mitigate the potential for soil vapor intrusion into the new building. The SSDS will induce a negative pressure (i.e., vacuum) beneath the building slab. The underground elements of the SSDS installed under the new building slab include the following components:

- Four SSDS branches consisting of 0.02-inch slotted and solid, 4-inch-diameter Schedule 40 polyvinyl chloride (PVC) pipe lengths beneath the building slab with riser legs penetrating the building slab and stubbed out approximately 2 to 3 feet above the top of slab;
- Pipe sleeves through concrete foundation elements;
- A minimum 6-inch-thick GPA stratum underlain by a geotextile fabric beneath the SSDS treatment area; and
- Four vacuum monitoring points (MPs) installed beneath the building slab.

During construction of the new building superstructure, the following aboveground elements will be installed to complete the SSDS installation:

- Pipe manifolds, which combine the PVC riser legs into a 6-inch galvanized steel pipe riser, extending to the roof of the building following building completion;
- A roof-mounted blower with a shut-off alarm connected to a local alarm panel;
- A 6-inch-diameter galvanized steel rooftop exhaust stack fitted with a rain cap, terminating at least 10 feet above the finished roof (whichever is greater);

- Accessories, including cleanouts, sample ports, vacuum indicators/pressure gauges, flow meters, butterfly valves, and differential pressure switches; and
- A control panel equipped with a telemetry system to notify select personnel of alarm conditions.

The SSDS complies with the requirements stated in Section 8.0 of the RAWP. The location and components of the SSDS are shown on **Figure 6**. As-built drawings for the underground components of the SSDS are included in **Appendix D**.

Procedures for operating and maintaining the SSDS are documented in the Operation and Maintenance Plan (see Section 5.0 of this SMP) and procedures for monitoring the SSDS are included in the Monitoring Plan (see Section 4.0 of this SMP). The Monitoring Plan also addresses severe condition inspections in the event that a severe condition occurs, which may affect controls at the Site.

3.3.2 Contingent Groundwater Treatment

In the event that the SSDS system is shut down and the CVOC concentrations in on-site groundwater monitoring wells are above the AWQSGVs, contingent groundwater treatment will be performed in the northeastern portion of the Site. To reduce CVOC concentrations, slow-release permanganate candles will be installed in the monitoring wells and/or an ISCO injection event will be conducted.

Prior to shutting down the SSDS system, groundwater samples will be collected from the monitoring wells (ISCO-MW-01 through ISCO-MW-04 and AKRF-MW-02R) and submitted to the laboratory for analysis of CVOCs by EPA Method 8260. If the CVOC concentrations are above the AWQSGVs, a description of the in-situ groundwater treatment program or candle installation and monitoring protocols will be submitted to NYSDEC for review and approval prior to implementation. The installed monitoring wells are an engineering control.

3.3.3 Site Cover System

To prevent direct contact with remaining contaminated soil, a Site cover system was installed in the Track 4 area. The cover system was constructed with a minimum of two feet of imported virgin crushed stone underlain by a demarcation barrier (filter fabric) in the exterior landscaped areas (see **Figure 8**). The cover system is a permanent control, and the quality and integrity of the system will be inspected at defined, regular intervals. Inspections of the cover system are detailed in this SMP.

3.3.4 Criteria for Completion of Remediation/Termination of Remedial Systems

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

As discussed below, NYSDEC may approve termination of operation of the SSDS. When a remedial party receives this approval, the remedial party will decommission all monitoring points and risers, as appropriate.

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

3.3.4.1 – Active SSDS

The operation of the active SSDS will not be discontinued unless prior written approval is granted by NYSDEC and NYSDOH. If monitoring data collected under the Monitoring Plan (Section 4.0 of this SMP) indicates that the SSDS or one or more of its components may no longer be required, a proposal to discontinue the SSDS and/or applicable components will be submitted by the remedial party to NYSDEC and NYSDOH for review and approval. Conditions that warrant discontinuing the SSDS include contaminant concentrations in soil vapor that reach levels that are consistently below NYSDOH Matrix Values or that have become asymptotic to a low level over an extended period of time as accepted by NYSDEC, or if NYSDEC has determined that the SSDS has reached the limit of its effectiveness.

3.3.4.2 – Site Cover System

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

4.0 MONITORING AND SAMPLING PLAN

4.1 General

This Monitoring and Sampling Plan describes the measures for evaluating the overall performance and effectiveness of the remedy. This Monitoring and Sampling Plan may only be revised with the approval of 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 (QAPP) provided in **Appendix F**.

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

- Sampling and analysis of all appropriate media (e.g., indoor air, sub-slab vapor, soil vapor);
- Assessing compliance with applicable NYSDEC standards, criteria, and guidance (SCGs), particularly NYSDOH Matrix Values;
- Evaluating Site information periodically to confirm that the remedy continues to be effective in protecting public health and the environment; and
- Preparing the necessary reports for the various monitoring activities.

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; and
- Annual inspection and periodic certification.

Reporting requirements are provided in Section 7.0 of this SMP. Monitoring of the performance of the remedy and overall reduction in contamination on-site will be conducted for the periods specified for each matrix listed in **In-Text Table III**. The frequency thereafter will be determined in consultation with NYSDEC and based on reports submitted showing contaminant trends. Trends in contaminant levels in soil vapor in the affected areas will be evaluated to determine if the remedy continues to be effective in achieving remedial goals. Monitoring programs are summarized in **In-Text Table III** and outlined in detail in sections below.

In-Text Table III
Monitoring/Inspection Schedule

Monitoring Program	Frequency*	Location	Matrix	Analysis
SSDS Routine Component Inspection and Maintenance	Quarterly for the first 12 months after COC, annually afterwards	SSDS riser pipes, manifold, vapor monitoring points, and system components on the roof	System Integrity and Air Flow	Visual Inspection of Conditions, Vacuum Monitoring Point, and System Readings
Sub-Slab Soil Vapor Monitoring	If required	SSDS Vapor monitoring points	Sub-slab soil vapor	CVOCs by TO-15
Indoor Air Monitoring	Once, following SSDS system startup	Cellar	Indoor Air only	CVOCs by TO-15

Monitoring Program	Frequency*	Location	Matrix	Analysis
Site-Wide and Site Cover System Inspection	Annually	Site-wide	Visual Inspection	N/A
Groundwater Monitoring	Four quarterly events following the approval of the SMP	Existing monitoring wells installed at the Site and two off-site wells (north of the Site)	Groundwater	CVOCs by EPA 8260

Notes:
*The frequency of events will be conducted as specified until otherwise approved by NYSDEC and NYSDOH.
CVOCs – chlorinated volatile organic compounds
N/A – not applicable

4.2 Site-Wide Inspection

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

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

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

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

Reporting requirements are outlined in Section 7.0 of this SMP.

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

4.3 SSDS Monitoring

Monitoring of the active SSDS will be performed on a routine basis, as identified in **In-Text Table IV**. The monitoring of the SSDS must be conducted by a QEP as defined in 6 NYCRR Part 375, a P.E. who is licensed and registered in New York State, or a qualified person who directly reports to a P.E. who is licensed and registered in New York State. Modification to the frequency or sampling requirements will require approval from NYSDEC. A visual inspection of the complete system will be conducted during each monitoring event. Unscheduled inspections and/or sampling may take place when a suspected failure of the SSDS has been reported or an emergency occurs that is deemed likely to affect the operation of the system. SSDS components to be monitored include, but are not limited to, the components included in **In-Text Table IV** below.

In-Text Table IV
SSDS Monitoring Requirements and Schedule

SSDS Component	Monitoring Parameter	Operating Range[1]	Monitoring Schedule
Vacuum Monitoring Points	Induced Vacuum Reading	a minimum of 0.004 inches H_2O	Upon system start-up or re-start, quarterly (first year), annually (after first year)
Riser Legs	Flow Rate	40 to 100 CFM	
Riser Legs	Applied Vacuum Reading	0.5 to 5 inches of H_2O	
Aboveground System Components (following installation)	Visual-Intactness and Functioning	N/A	

Notes:
CFM – Cubic feet per minute
N/A – not applicable
[1]Operating ranges for flow rate and applied vacuum may be adjusted based on system performance, balancing of riser legs, throttling of the VFD, etc.

Following the installation and startup of the active SSDS, indoor air (IA) samples will be collected from multiple locations (to be confirmed) in the new building cellar and prior to building occupancy. The IA samples will be collected following completion of the building envelope and during the heating season (preferably) and while the HVAC is operational and SSDS is running to confirm the effectiveness of the system in addressing any potential indoor air concerns in the new building. If HVAC installation is completed outside of the heating season, then the samples will be collected during the next heating season. A separate IA Sampling Work Plan (IASWP) will be prepared and submitted to NYSDEC and NYSDOH for review and approval prior to collecting any

samples. The findings and sampling methodology will be provided in an IA Sampling Report (IAST) and submitted to NYSDEC and NYSDOH for review.

The inspection/monitoring frequency may be modified based on field screening with the approval of NYSDEC. This SMP will be modified to reflect changes in monitoring and sampling plans approved by NYSDEC.

4.4 Groundwater Monitoring

A network of monitoring wells was installed as part of the remedial action to monitor groundwater conditions at the Site. In addition, two off-site monitoring wells were installed during the remedial action to monitor downgradient groundwater conditions. The network of on-site and off-site wells was installed based on the following criteria:

- Contaminant source area location including soil and groundwater analytical results documented over the course of the RI; and
- A generally northeasterly groundwater flow direction.

A figure showing the monitoring well locations is provided as **Figure 7**, and the monitoring well construction details are provided in **In-Text Table V**.

Table V
Monitoring Well Construction Details

Monitoring Well ID	Well Location	Coordinates (longitude/ latitude)	Well Diameter (inches)	Elevation (above mean sea level)			
				Top of PVC	Surface	Screen Top	Screen Bottom
ISCO-MW-01	Upgradient	40.758935 -73.8341	2	29.55	29.86	13.93	-1.07
ISCO-MW-02	Source Area	40.758991 -73.834083	2	29.62	29.83	12.67	-2.33
ISCO-MW-03	Source Area	40.759004 -73.83405	2	29.54	29.84	14.58	-0.42
ISCO-MW-04	Downgradient	40.759092 -73.833994	2	44.06	44.51	14.06	-0.94
AKRF-MW-02R	Downgradient	40.759066 -73.834105	2	44.21	43.75	15.21	0.21

The monitoring wells are located within the building footprint and on adjacent sidewalks. TCE was detected in groundwater samples at concentrations above the AWQSGVs in multiple samples collected during the RI and the remedial action.

Four quarterly groundwater sampling events will be completed following approval of this SMP. A groundwater monitoring program schedule is provided in **In-Text Table VI**.

Table VI
Groundwater Monitoring Schedule

Well ID	Well Location	Monitoring Frequency	Analytical Parameter(s)
ISCO-MW-01	On-Site	Quarterly	CVOCs
ISCO-MW-02	On-Site	Quarterly	CVOCs
ISCO-MW-03	On-Site	Quarterly	CVOCs
ISCO-MW-04	Off-Site	Quarterly	CVOCs
AKRF-MW-02R	Off-Site	Quarterly	CVOCs

The sampling will be performed to assess CVOC concentrations on a quarterly basis, as outlined in the Table VI. The sampling event previously described will be reported in a quarterly monitoring report per the requirements of Section 7.0 of this SMP. The sampling will be conducted in accordance with the Health and Safety Plan (HASP) and Community Air Monitoring Plan (CAMP) (**Appendix H**) and the Quality Assurance Project Plan (QAPP) (**Appendix F**). The locations of the monitoring wells to be sampled are shown on Figure 7.

4.5 Monitoring Quality Assurance/Quality Control

All sampling and analyses will be performed in accordance with the requirements of the QAPP prepared for the Site (**Appendix F**). The main components of the QAPP include:

- QA/QC Objectives for Data Measurement
- Sampling Program:
  - Samples will be collected into laboratory-supplied containers.
  - Sample holding times will be in accordance with the NYSDEC Analytical Services Protocol (ASP) requirements.
  - Field QC samples (e.g., trip blanks, coded field duplicates, and matrix spike/matrix spike duplicates) will be collected as necessary.
- Sample Tracking and Custody
- Calibration Procedures:
  - All field analytical equipment will be calibrated immediately prior to each day's use and will follow all calibration procedures and schedules as specified in EPA SW-846 and subsequent updates that apply to the instruments used for the analytical methods.
- Analytical Procedures
- Preparation of a DUSR, which will present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and chain of custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method.
- Internal QC and Checks
- QA Performance and System Audits
- Preventative Maintenance Procedures and Schedules
- Corrective Action Measures

5.0 OPERATION AND MAINTENANCE PLAN

5.1 General

This Operation and Maintenance Plan provides a brief description of the measures necessary to operate, monitor, and maintain the mechanical components of the remedy selected for the Site, an active SSDS. This Operation and Maintenance Plan:

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

A copy of this Operation and Maintenance Manual, along with the complete SMP, is to be maintained at the Site. This Operation and Maintenance Plan is not to be used as a stand-alone document, but as a component document of this SMP.

5.2 Remedial Systems Performance Criteria

An active SSDS is being installed (sub-slab components have been installed and aboveground components will be installed during building construction) at the Site to prevent the potential for vapor intrusion into the building and will operate continuously. Once completed, the SSDS is designed to operate continuously, 24 hours a day, 7 days a week, 365 days a year, without any required adjustments or repairs beyond the routine maintenance items. Details pertaining to the performance monitoring of this EC is outlined below.

5.3 Operation and Maintenance of the SSDS

An active SSDS will be operated to mitigate the potential for soil vapor intrusion into the new building by applying negative pressure beneath the concrete slab, minimizing the potential for vapor intrusion. The major components of the SSDS include:

- Four slotted 4-inch PVC horizontal SSDS pipes embedded in a GPA layer within the building footprint;
- Four sub-slab vacuum monitoring points throughout the footprint of the Site building;
- A single manifold connecting the SSDS branches to a 6-inch-diameter galvanized steel vertical riser leading to the building roof;
- Magnehelic gauges and flow sensors installed on the pipe manifolds to monitor system performance;
- One appropriately sized 1.5 HP blower connected to the vertical riser at the building roof to vent soil vapor, with variable-frequency drive (VFD) to throttle blower operation to acceptable conditions;
- A control panel equipped with a remote alarm system to notify on-site personnel of alarm conditions; and
- Exhaust stack consisting of a 6-inch galvanized steel pipe terminating a minimum of 25 feet from any air intakes/vents or off-Site buildings.

The SSDS layout is included as **Figure 6**, and as-built drawings for the underground components of the SSDS are included in **Appendix D**. The SMP will be updated after building construction to include as-built drawings of the aboveground SSDS elements.

Once completed, the SSDS is designed to operate continuously, 24 hours a day, 7 days a week, 365 days a year, without any required adjustments or repairs beyond the routine maintenance items discussed in Section 4.3 of this SMP. Regular system inspections, operation parameter documentation, and performance assessment guidelines are detailed in Sections 4.1 and 4.3 of this SMP.

5.3.1 SSDS Start-Up and Testing

The SSDS will be started up and tested following completion of building construction and prior to building occupancy. Testing will also be conducted after any future event that requires system shutdown/restart.

The SSDS start-up inspection will include the following:

- Confirmation of acceptable air flow rate from the SSDS riser by a visual inspection of flow sensors affixed to each of the manifold legs and use of an appropriate manometer or portable vacuum gauging device;
- Confirmation of acceptable vacuum readings from each SSDS riser by a visual inspection of magnehelic gauges affixed to manifold legs;
- Confirmation that that an alarm is triggered at the corresponding alarm indication station when each fan is deactivated; and
- Confirmation of acceptable induced vacuum (a minimum of 0.004 inH_2O) beneath the entire cellar slab from the four monitoring points (MP-1 through MP-4) through the manual access of each point and use of an appropriate manometer or portable vacuum gauging device.

The SSDS startup protocols are also provided in the **In-Text Table VII**.

In-Text Table VII
SSDS Startup Protocol

SSDS Component	Acceptable Air Flow Reading	Acceptable Vacuum Reading	Yes/No
Vertical Risers	NA	5 to 10 inches of water	NA
Monitoring Points	NA	0.004 inch of water (minimum)	NA
Individual SSDS Riser Legs	25 to 125 CFM (minimum)	1 to 5 inches of water (minimum)	NA
SSDS Fan	NA	5 to 10 inches of water	NA
Alarm Functionality	NA	NA	Yes/No

CFM = cubic feet per minute
NA = not applicable

Adjustments to the blower and individual SSDS lines may be necessary at start-up and after any alterations to the overall system. SSDS equipment, including individual valves on SSDS lines, will be throttled to rebalance the system, adjusting air flow rates and vacuum/pressure readings to acceptable values. A copy of the SSDS inspection log is provided in **Appendix I**. The log will be updated after initial system start-up and balancing to determine acceptable operating ranges for air flow and vacuum.

At a minimum, the findings and conclusions following system start-up/restart activities will be reported in the subsequent quarterly media monitoring report. In addition, depending on the nature of the adjustment to the system, the process and instrumentation diagram (P&ID) and/or Site figures may need to be updated to reflect the work completed. Such revisions shall be completed and submitted to NYSDEC with the media monitoring report.

5.3.2 SSDS Operation: Routine Operation

After start-up, the SSDS is designed to operate continuously without any required adjustments or repairs, beyond routine maintenance items discussed in Section 5.3.4. No adjustments to the operating schedule or other intentional interruptions to operation (other than those required for routine maintenance) shall be permitted without written approval by NYSDEC and NYSDOH.

The system includes a differential pressure switch that will trigger an alarm in the event of blower malfunction (or other condition resulting in low vacuum in the SSDS riser) so that appropriate corrective actions can be taken.

If shutdown of the SSDS is considered, a proposal to discontinue the SSDS will be submitted by the Volunteer for NYSDEC and NYSDOH approval. The SSDS will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

5.3.3 SSDS Operation: Routine Inspections

The effectiveness of the SSDS components will be confirmed via monthly system inspections to be conducted by a qualified building personnel. Monitoring of the SSDS will consist of a visual inspection of the complete system, including checking to confirm that the SSDS blowers are operating properly, observing all associated air flow and vacuum gauges and alarms to confirm they are within acceptable ranges, identification and repair of any system malfunctions or problems (e.g., leaks, cracks, collection of condensation, etc.), and taking vacuum readings at the fourteen vacuum monitoring points. A copy of the SSDS Routine Inspection Log is provided in **Appendix I**. The log will be updated after initial system start-up and balancing to determine acceptable operating ranges for air flow and vacuum.

Individual flow rate and vacuum readings will be recorded for the four SSDS pipe branches, and sub-slab vacuum will be confirmed in the four vacuum monitoring points. This operational data will be used as needed to adjust controls for individual branches and any faulty gauges will be repaired or replaced as needed. SSDS inspections will be conducted on a monthly basis for the first year of operation, and annually thereafter.

Care shall be taken during inspections to identify and repair any system malfunctions or problems (e.g., leaks, cracks, collection of condensation, etc.).

5.3.4 SSDS Operation: Routine Equipment Maintenance

A schedule for SSDS routine equipment maintenance work is provided in **In-Text Table VIII**.

In-Text Table VIII
SSDS Inspection/Maintenance Schedule

Operations Task	Frequency	Maintenance Task
SSDS Routine Inspection	monthly (by trained building personnel), annually thereafter, and as necessary	Repairs to system components as needed based on inspections

Routine Maintenance

The routine SSDS inspections will include:

- Confirmation that the blower is operating and air is discharging through the exhaust piping at the roof;
- Confirmation that the pressure gauges and air flow sensors on each SSDS riser leg are clean and readings are within normal ranges;
- Confirmation that the vacuum gauges at the blower inlet is clean and reading within the acceptable range; and
- Confirmation that the exterior of the SSDS control panel is clean and that the alarm indication station is operating correctly.

Maintenance to system components (e.g., cleaning/replacement of gauges, adjustments to system balancing) will be scheduled as needed based on findings from the inspection. Some routine maintenance will require intentional interruptions to SSDS operation. Both unexpected and deliberate alterations to and/or shutdowns of the system will be recorded in the field book and documented on an SSDS Inspection Log, provided in **Appendix I**. A cumulative shutdown log, provided in **Appendix J**, will be maintained separately to track any atypical system activity, including, but not limited to, alarm conditions and responses, and to track scheduled shutdowns for system maintenance.

Detailed SSDS Inspection and System Component Maintenance

The detailed operations check will be performed to identify/rectify operations-based maintenance items, such as malfunctioning SSDS risers, piping runs, and/or other system components. Typical detailed maintenance items that should be addressed during these inspections include the following:

- Confirm/assess blower performance and integrity;
- Assess blowers and determine need for replacement;
- Confirm/assess alarm indication station performance and integrity;
- Confirm/assess the operating condition of vacuum monitoring points MP-1 though MP-4; and
- Confirm/assess the structural integrity of concrete floor slabs overlying constructed SSDS manifold and piping runs.

The roof-mounted SSDS fan consists of a blower and motor pair. Each piece of equipment requires routine maintenance that is dictated either by runtimes or operating conditions, as defined by manufacturer's specifications. A binder containing complete paper copies of manufacturer's specifications for all system components will be maintained on-site.

5.3.5 SSDS Operation: Non-Routine Equipment Maintenance

In most instances, non-routine maintenance will be required due to operating conditions that are monitored by the SSDS alarm system. The primary objective of the alarm system is to notify personnel when operating conditions are likely to reduce or otherwise compromise SSDS efficiency.

An alarm condition may be indicative of damage to, blockage of, and/or deterioration of the SSDS piping or blower. Damage to the individual SSDS lines may be noticeable only by interpreting unusually high or low vacuum readings or air flow rates, which will be noted in the routine system inspections and remedied upon identification.

5.3.6 SSDS Monitoring Devices and Alarms

The SSDS will have a warning alarm system that notifies select personnel if the system is not operating properly (e.g., vacuum blower failure or a low vacuum condition). The alarm will provide remote notification and provide both local audible/visual notification for a low vacuum condition from the differential pressure switch. Each audible alarm will be an 85 to 95 decibel horn or buzzer with a manually operated "off" switches.

In the event of an alarm, the on-site maintenance personnel shall investigate the problem by performing a detailed operations check and conducting applicable maintenance and repairs, as specified in this Operation and Maintenance Plan. When the system is restarted after an alarm condition, testing will be conducted as described in Section 5.3.1. Operational problems will be noted in the quarterly monitoring report and PRR prepared for that reporting period.

5.4 Fire Safety

The Volunteer will confirm on an annual basis that the building personnel conducted a facility walk with the local fire chief and/or fire suppression team. The Site walk will allow for the addition of the facility to any local preplanning efforts. The NYSDEC project manager will be provided with the local fire chief's/fire suppression team's recommendations as soon as they become available. Following review, the NYSDEC project manager may direct the remedial party to implement the recommendations and/or revise the SMP.

5.5 Emergency Telephone Numbers

In the event of any environmentally related situation or unplanned occurrence requiring assistance, the Owner or Owner's representative(s) should contact the appropriate party from the contact list below. For emergencies, appropriate emergency response personnel should be contacted. Prompt contact should also be made to AKRF's Project Principal or Project Manager or the current property manager/owner's representative for the Site. Emergency contact lists must be maintained in an easily accessible location at the Site. **In-Text Table IX** includes contact information for the emergency response personnel.

In-Text Table IX
Emergency Contact Numbers

Medical, Fire, and Police:	911
One Call Center:	(800) 272-4480 (3-day notice required for utility mark out)
Poison Control Center:	(800) 222-1222
Pollution Toxic Chemical Oil Spills:	(800) 424-8802
NYSDEC Spills Hotline	(800) 457-7362

5.6 Map and Directions to Nearest Health Facility

A map showing the route from the Site to the nearest Hospital is included under the HASP in **Appendix H**. The details are listed below:

- Nearest Hospital Name: Flushing Hospital Medical Center
- Hospital Location: 4500 Parsons Boulevard – Queens, New York
- Hospital Telephone: (718) 670-5000
- Directions to Hospital:

  1. Go WEST (turn left) on 39th Avenue
  2. Turn LEFT on College Point Boulevard
  3. Turn LEFT on Roosevelt Avenue
  4. Turn RIGHT on Parsons Boulevard
  5. Turn RIGHT on Delaware Avenue

The Emergency Department entrance will be at the end of a driveway/walkway on the left side of Delaware Avenue, between Parsons Boulevard and Burling Street

6.0 PERIODIC ASSESSMENTS/EVALUATIONS

6.1 Climate Change Vulnerability Assessment

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

- Flood Plain: The Site is not located within a flood plain.
- Site Drainage and Storm Water Management: Stormwater at the Site and the surrounding area flows to the New York City combined sewer system.
- Erosion: The Track 2 portion of the Site is covered with a concrete slab and the Track 4 area has a Site cover that comprises of a minimum of two feet of crushed virgin stone. No exposed soil remains at the Site, and as such, erosion is not anticipated to be an issue of concern.
- High Wind: All permanent building components are secured against high winds. In the event that high winds are forecasted for the Site, proper precautions will be taken to secure or shelter any Site components that are not protected against high winds.
- Electricity: Electricity to the building is supplied via newly installed underground vaults and conduits and is not expected to be affected by severe weather events.
- Spill/Contaminant Release: Storage of large amounts of fuel oil or other chemicals at the Site is not expected. Nominal amounts of cleaning chemicals are likely to be stored throughout the Site but are not expected to be affected by severe weather conditions.
- The Site is located in an urban area and there is no risk associated with wildfires.

6.2 Vapor Mitigation

Any on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the building from the subsurface.

6.3 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 PRR.

6.3.1 Timing of Green Remediation Evaluations

For major remedial system components, green remediation evaluations and corresponding modifications will be undertaken as part of a formal Remedial System Optimization

(RSO), or at any time that the NYSDEC project manager feels appropriate, e.g., during significant maintenance events or in conjunction with storm recovery activities.

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

6.3.2 Remedial Systems

Remedial systems will be operated properly considering the current Site conditions to conserve materials and resources to the greatest extent possible. Consideration will be given to operating rates and use of reagents and consumables. The SSDS motor will be adjusted using the VFDs to minimize energy usage if feasible based on operating conditions.

6.3.3 Building Operations

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

6.3.4 Frequency of System Checks, Sampling, and Other Periodic Activities

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

6.3.5 Metrics and Reporting

As discussed in Section 7.0 and as shown in **Appendix G**, information on energy usage, solid waste generation, transportation and shipping, water usage and land use and ecosystems will be recorded to facilitate and document consistent implementation of green remediation during site management and to identify corresponding benefits. A set of metrics has been developed.

6.4 Remedial System Optimization

A Remedial System Optimization (RSO) study will be conducted any time that 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 DD;
- The management and operation of the remedial system exceeds 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 Site management to another remedial party or agency; and/or

- 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 provide a basis for changing the remedial strategy.

The RSO study will focus 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. Green remediation technology and principals are to be considered when performing the RSO. The RSO table of contents are provided in **Appendix K**.

7.0 REPORTING REQUIREMENTS

7.1 SSDS Maintenance and Performance Monitoring Reporting Requirements

Barring any unusual findings, the system inspections and maintenance previously described will be reported per the requirements detailed in this section of this SMP. In the event that an unexpected condition is noted, such as a critical malfunction or extreme weather conditions that may hinder system operation, NYSDEC will be promptly alerted.

Any unexpected or critical issues identified during the monitoring tasks will be reported via email or phone notification to the NYSDEC project manager. Maintenance reports and any other information generated during regular operations at the Site will be kept on file on-site. All reports, forms, and other relevant information generated will be available to NYSDEC upon request and submitted as part of the PRR, as specified in the Section 6.0 of this SMP.

7.1.1 Routine Maintenance Forms

Checklists or forms (see **Appendix G**) will be completed during each maintenance event. Checklists/forms will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting maintenance activities;
- Maintenance activities conducted;
- 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 relevant documentation, such as copies of invoices for maintenance work, receipts for replacement equipment, etc. (attached to the checklist/form).

7.1.2 Non-Routine Maintenance Forms

During each non-routine maintenance event, a form will be completed which will include, but not be limited to, the following information:

- Date;
- Name, company, and position of person(s) conducting non-routine maintenance/repair activities;
- Presence of leaks;
- Date of leak repair;
- Other repairs or adjustments made to the system;
- 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 relevant documentation, such as copies of invoices for repair work, receipts for replacement equipment, etc. (attached to the checklist/form).

7.2 Site Management Reports

All Site management inspection, maintenance, and monitoring events will be recorded on the appropriate Site management form provided in **Appendix G**. This form is subject to NYSDEC revision. All Site management inspection, maintenance, and monitoring events will be conducted by a QEP as defined in 6 NYCRR Part 375, a P.E. who is licensed and registered in New York State, or a qualified person who directly reports to a P.E. who is licensed and registered in New York State, as appropriate.

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 summarized in the Periodic Review Report (PRR) and provided in electronic format to NYSDEC in accordance with the requirements of **In-Text Table X**.

In-Text Table X
Schedule of Monitoring/Inspection Reports

Task/Report	Reporting Frequency*
Initial Start-up Testing and Vacuum Readings	Included in the PRR
Periodic Review Report (Inclusive of All Inspections and Sampling Events)	Annually. First inspection no more than 16 months after issuance of COC, then at least annually thereafter, and PRR due 1 month after the end of the reporting period.

Note: * The frequency of events will be conducted as specified until otherwise approved by 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);
- Copies of all field forms completed (e.g., chain-of-custody documentation);
- Sampling results in comparison to appropriate SCGs;
- 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 be provided in the quarterly reports and 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 relevant 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 be provided in the quarterly reports and 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 relevant 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 NYSDEC. Currently, data is to be supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.

7.3 Periodic Review Report

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

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

- Identification of any wastes generated during the reporting period, along with waste characterization data, manifests, and disposal documentation.
- A summary of any discharge monitoring data and/or information generated during the reporting period, with comments and conclusions.
- Data summary tables and graphical representations of contaminants of concern by media (soil vapor, etc.), including a list of all compounds analyzed, along with the applicable standards, with all exceedances highlighted. These tables and figures will include a presentation of past data as part of an evaluation of contaminant concentration trends, including but not limited to:
    - Trend monitoring graphs depicting SVES influent analytical data on a per event and cumulative basis;
    - Operation and maintenance data summary tables; and
    - Results of all analyses, copies of all laboratory data sheets, and the required laboratory data deliverables for all samples collected during the reporting period, submitted in digital format as determined by NYSDEC. Currently, data is supplied electronically and submitted to the NYSDEC EQuIS™ database in accordance with the requirements found at this link: http://www.dec.ny.gov/chemical/62440.html.
- A Site evaluation, which includes the following:
    - The compliance of the remedy with the requirements of the site-specific RAWP and DD;
    - The operation and effectiveness of the ECs, including identification of any needed repairs or modifications;
    - Any new conclusions or observations regarding Site contamination based on inspections or data generated;
    - Recommendations regarding any necessary changes to the remedy and/or Monitoring and Sampling Plan;
    - An evaluation of trends in contaminant levels in the affected media to determine if the remedy continues to be effective in achieving remedial goals as specified by the RAWP, and DD; and
    - The overall performance and effectiveness of the remedy.
- A performance summary for all treatment systems at the Site during the calendar year, including information such as:
    - The contaminant mass removed during the certification period and during the life of the treatment system;
    - A description of breakdowns and/or repairs along with an explanation for any significant downtime;
    - A description of the resolution of performance problems;
    - Alarm conditions;
    - Trends in equipment failure;
    - A summary of the performance, effluent, and/or effectiveness monitoring; and

- Comments, conclusions, and recommendations based on data evaluation. Recommendations must address how receptors would be impacted. Recommendations can include:
  - Proposals to address efficiency, such as instituting remote operation, system changes to decrease maintenance and downtime, and system changes to decrease energy use; and
  - Proposals to modify or shut down a treatment system due to remediation completion, system performance or changed conditions. System shutdowns are addressed in Section 6.4 of DER-10.

7.3.1 Certification of Institutional and Engineering Controls

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

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

- *The inspection of the Site to confirm the effectiveness of the institutional and engineering controls required by the remedial program was performed under my direction;*
- *The institutional control and/or engineering control employed at this Site is unchanged from the date the control was put in place, or last approved by NYSDEC;*
- *Nothing has occurred that would impair the ability of the control to protect public health and the 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 NYSDEC to evaluate the remedy, including access to evaluate the continued maintenance of this control;*
- *Use of the Site is compliant with the environmental easement;*
- *The engineering control systems are performing as designed and are effective;*
- *To the best of my knowledge and belief, the work and conclusions described in this certification are in accordance with the requirements of the site remedial program and generally accepted engineering practices; and*
- *The information presented in this report is accurate and complete.*

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

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

The signed certification will be included in the PRR.

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

7.4 Corrective Measures Work Plan

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

7.5 Remedial System Optimization Report

If an RSO is to be performed (see Section 6.4), an RSO report must be submitted to the NYSDEC project manager for approval upon completion of an RSO. A general outline for the RSO report is provided in **Appendix K**. 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 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. An FER and update to the SMP may also be required.

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

8.0 REFERENCES

1. 6 NYCRR Part 375, Environmental Remediation Programs. December 14, 2006.
2. NYSDEC DER-10 – "Technical Guidance for Site Investigation and Remediation".
3. NYSDEC, 1998. Ambient Water Quality Standards and Guidance Values and Groundwater Effluent Limitations Division of Water Technical and Operational Guidance Series (TOGS) 1.1.1. June 1998 (April 2000 addendum).
4. Phase I Environmental Site Assessment (ESA) – 133-04 39th Avenue, Flushing, NY, G.C. Environmental, Inc., May 14, 2002.
5. Phase II Environmental Site Investigation Report – Asian Americans for Equality, 133-04 39th Avenue, Queens, NY, Louis Berger & Assoc., P.C. (LBA), January 16, 2007.
6. Architectural Survey – Tax Block 4973, Lot 6, Map of Property at Flushing, Queens County, New York, Joseph Nicoletti Associates, March 1, 2016.
7. Soil Disposal Characterization – 133-04 39th Avenue, Queens, New York, Roux Associates, Inc. (Roux), July 14, 2016.
8. Preliminary Subsurface Investigation Report – AAFE Mixed-Use Building, Flushing, New York, Mueser Rutledge Consulting Engineers (MRCE), June 30, 2016, revised October 27, 2016.
9. Remedial Investigation Report – OER Project Number 16EH-N284Q, Asian Americans for Equality, Queens, NY, Roux Associates, Inc., January 2017.
10. Final Subsurface Investigation Report – AAFE Mixed-Use Building, Flushing, New York, Mueser Rutledge Consulting Engineers, January 13, 2017.
11. New York City Environmental Quality Review – EAS Short Form, 133-04 39th Avenue, Queens, New York, Roux, May 16, 2017.
12. Remedial Action Work Plan - Asian Americans for Equality, 133-04 39th Avenue, Queens, New York, NYC VCP Project No. 17CVCP014Q, Remedial Engineering, P.C., July 2017.
13. Phase I Environmental Site Assessment - 133-04 39th Avenue, Queens, NY, AKRF, Inc., August 2021.
14. Updated Geotechnical Engineering Report – AAFE Mixed-Use Building, Queens, NY, MRCE, August 2, 2021.
15. Soil Waste Characterization Results – Magnolia Gardens, 39-03 College Point Boulevard, Queens, NY, AKRF, June 14, 2023.
16. Remedial Investigation Report, 39-03 College Point Boulevard, Queens, New York, AKRF, Inc., August 2022, Revised January 2024.
17. Remedial Action Work Plan, 39-03 College Point Boulevard, Queens, New York, AKRF, Inc., February 2024.
18. Groundwater Treatment Design Document, 39-03 College Point Boulevard, Queens, New York, AKRF, Inc., April 2024, Revised June 2024.