
DRAFT REMEDIAL ACTION WORK PLAN

for

C Block

21 Freeman Street, 37 Freeman Street, and 209 West Street
Brooklyn, New York
NYSDEC BCP Site No. C224435

Prepared for:

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23 February 2026

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CERTIFICATION

I, Jason Hayes, certify that I am currently a New York State (NYS) registered professional engineer and that this Remedial Action Work Plan was prepared in accordance with applicable statutes and regulations and in substantial conformance with the DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31).

I certify that all information and statements in this certification 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.

NYS Professional Engineer

Date

Signature

It is a violation of Article 145 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 145, New York State Education Law.

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LIST OF ACRONYMS

Acronym	Definition
AOC	Area of Concern
ASP	Analytical Services Protocol
ASTM	American Society for Testing and Materials
BCA	Brownfield Cleanup Agreement
BCP	Brownfield Cleanup Program
bgs	Below grade surface
BMP	Best Management Practices
C&D	Construction and Demolition
CAMP	Community Air Monitoring Plan
CFR	Code of Federal Regulations
CHASP	Construction Health and Safety Plan
COC	Certificate of Completion
CP	Commissioner Policy
CPP	Citizen Participation Plan
CQAP	Construction Quality Assurance Plan
CSM	Conceptual Site Model
CVOC	Chlorinated Volatile Organic Compounds
DER	Division of Environmental Remediation
DER-10	NYSDEC Program Policy DER-10: Technical Guide for Site Investigation and Remediation
DER-31	NYSDEC Program Policy DER-31: Green Remediation
DMM	Division of Materials Management
DUSR	Data Usability Summary Report
EC	Engineering Control
ECL	Environmental Conservation Law
EDD	Electronic data deliverable
EE	Environmental Easement
EI	Elevation
ELAP	Environmental Laboratory Approval Program
ESA	Environmental Site Assessment
FER	Final Engineering Report
GHG	Greenhouse Gas
GSR	Green and Sustainable Remediation
HASP	Health and Safety Plan
IC	Institutional Control
Langan	Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C.
NAVD88	North American Vertical Datum of 1988
NO _x	Nitrogen Oxides

Acronym	Definition
NYC	New York City
NYCDOB	New York City Department of Buildings
NYCDOT	New York City Department of Transportation
NYCRR	New York Codes, Rules and Regulations
NYS	New York State
NYSDCP	New York State Department of City Planning
NYCDEP	New York City Department of Environmental Protection
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OSHA	Occupational Safety and Health Administration
Part 375	Title 6 of the New York Codes, Rules and Regulations Part 375-1, 3.8, 6.8
PBS	Petroleum Bulk Storage
PCB	Polychlorinated Biphenyl
PE	Professional Engineer
PFAS	Per- and Polyfluoroalkyl Substances
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PGW	Protection of Groundwater
PID	Photoionization Detector
PM10	Particulate matter less than 10 micrometers in diameter
PPE	Personal Protective Equipment
ppm	Parts per million
PRR	Periodic Review Report
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QEP	Qualified Environmental Professional
RAO	Remedial Action Objective
RAWP	Remedial Action Work Plan
RCA	Recycled Concrete Aggregate
RCRA	Resource Conservation and Recovery Act
RE	Remediation Engineer
RI	Remedial Investigation
RIR	Remedial Investigation Report
RRU	Restricted Use Restricted-Residential
RUR	Restricted Use Residential
RURR	Restricted Use Restricted-Residential
SCG	Standards, Criteria, and Guidance
SCO	Soil Cleanup Objective
SFMP	Soil/Fill Management Plan
SGV	Standards and Guidance Values

Acronym	Definition
the Site	21 Freeman Street, 37 Freeman Street, and 209 West Street, Brooklyn, New York
SMD	Submembrane Depressurization
SMP	Site Management Plan
SOE	Support of Excavation
SO _x	Sulphur Oxides
SPDES	State Pollutant Discharge Elimination System
SRI	Supplemental Remedial Investigation
SVI	Soil Vapor Intrusion
SVOC	Semivolatile Organic Compound
SWPPP	Stormwater Pollution Prevention Plan
TCLP	Toxicity Characteristic Leaching Procedure
TOGS	Technical and Operational Guidance Series
ULSD	Ultra-low sulfur diesel
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
UST	Underground Storage Tank
UU	Unrestricted Use
VOC	Volatile Organic Compound
The Participants	GPLC HoldCo LLC, GPLC Member LLC, GPLC Owner LLC
µg/m ³	Micrograms per cubic meter
µg/L	Micrograms per liter
6 NYCRR	Title 6 of the New York Codes, Rules and Regulations

EXECUTIVE SUMMARY

GPLC HoldCo LLC, GPLC Member LLC, and GPLC Owner LLC (the Participants) are enrolled in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) and are responsible for the investigation and remediation of the property at 21 Freeman Street, 37 Freeman Street, and 209 West Street in Brooklyn, New York, otherwise referred to as C Block (the site). The Participants were accepted into the NYSDEC BCP to investigate and remediate the site pursuant to the NYSDEC Brownfield Cleanup Agreement (BCA) executed on 9 December 2025 (Index No. C224435-09-25). BCP Site No. C224435 was assigned to the site. The site is also under the regulatory jurisdiction of the New York City Office of Environmental Remediation (NYCOER) pursuant to the Greenpoint-Williamsburg Rezoning dated 11 May 2005 (CEQR No. 04DCP003K), which placed E-Designations for Hazardous Materials and Noise (E-138) on the tax lots comprising the site. The E-Designation includes environmental restrictions during development for hazardous materials and noise (i.e., window wall attenuation and alternate means of ventilation requirements). The project intends to address the Hazardous Materials E-Designation requirements through the BCP and a Noise Remedial Action Plan (RAP) will be presented to the NYCOER under separate cover to address the Noise E-Designation requirements.

The redevelopment project includes constructing three new residential buildings (Buildings C1, C2, and C3) with partial and/or full subgrade levels used for vehicle parking, amenities, tenant storage, and/or building systems/maintenance. This RAWP identifies and evaluates remedial action alternatives and presents the preferred split Track 1/Track 2 and Track 4 remedy. If a Track 1 remedy is deemed infeasible, a Track 2 Restricted Use Residential (RUR) remedy will be proposed in the footprints of Building C2 and C3. The Track 1/Track 2 area encompasses Buildings C2 and C3 and the Track 4 area encompasses Building C1 and all exterior areas outside of the footprints of these two buildings within the BCP site boundary, including the waterfront access area, private amenity terrace, the Connector Road, and Freeman Street. The waterfront access area will later be apportioned and transferred to the City of New York under the jurisdiction of the New York City Department of Parks and Recreation (NYC DPR).

The proposed remedy was developed based on data gathered during the Remedial Investigation (RI) for C Block completed by Langan between 25 July and 5 August 2022 and the Supplemental Remedial Investigation (SRI) for C Block completed by Langan between 12 and 14 January 2026 (collectively referred to as the RIs). The remedy described in this document is consistent with the procedures defined in the NYSDEC Program Policy DER Technical Guidance for Site Investigation and Remediation (DER-10) and Green Remediation (DER-31), and complies with applicable federal, state, and local laws, regulations, and requirements.

Site Description/Physical Setting/Site History

The site is about 163,000 square feet (± 3.74 acres) in area and is located at 21 Freeman Street (Building C1), 37 Freeman Street (Building C2), and 209 West Street (Building C3) in the Greenpoint neighborhood of Brooklyn, New York. The site is identified on the Brooklyn Borough Tax Map as Block 2502, part of (p/o) Lot 1 and p/o Lot 5, and Block 2510, p/o Lot 1 and p/o Lot 100. The site is bound by Greenpoint Landing

Parcel D (Block 2472, Lots 2, 3, 4, 21 and 23, Block 2502, Lot 2 and part of Lot 5) to the north; West Street to the east; a parking lot to the south; and the East River to the west. The site is currently a paved and vacant parcel of land.

Coal, lumber, and masonry materials storage were the primary uses of the site for more than 100 years from the late 1800s until circa 2000. In 1916, the southeastern part of the site was occupied by a manufacturing and packing facility. The Newton Creek Corporation occupied part of the site in 1922, and Newtown Creek Coal and Coke Co. Inc. occupied part of the site in 1928. Parts of the site appeared to have been vacant from 1916 through the 1940s. The site was again used for lumber storage from the early 1950s to circa 2000. The site has been used by various commercial and industrial tenants since the early 2000s, including Bay Crane and other tenants using the property for parking and storage of construction materials and equipment.

Redevelopment Plan

As currently conceived, the project will include construction of three new residential buildings named C1, C2, and C3:

- The C1 building will be a 470-foot tall (40-story plus bulkhead) high-rise residential tower with a 10-story podium and a partial cellar level for back-of-house space, storage, and a swimming pool.
- The C2 building will be a 300-foot-tall (30-story plus bulkhead) residential tower with two full-cellar levels used for vehicle parking, tenant storage, and/or building systems/maintenance.
- The C3 building will be a 100-foot tall, 12-story mixed-use residential and commercial building with a full-cellar level used for vehicle parking, amenities, tenant storage, and/or building systems/maintenance.

The cellar levels of Buildings C2 and C3 will be connected. The residential units in the C1, C2, and C3 buildings will be a mix of market-rate and affordable units under Affordable NY and inclusionary housing programs (overall about 70% market rate and 30% affordable). There will be new public access sidewalks and roadways along Freeman Street and a private internal connector road that will transect the site in a north-south direction to the adjoining cul-de-sac at the western end of Eagle Street. The sidewalks and roadways will include street lighting, trees, and plantings. The shoreline along the East River will be stabilized and the waterfront will be developed into a public park/esplanade, including about 32,740-square-feet of public waterfront, shore public walkway, upland connection, and view corridor, that will be transferred to the City of New York upon completion. Shoreline stabilization also includes installation of a 450 linear-foot steel bulkhead along the western edge of the BCP boundary. New utilities, including water, sanitary and storm sewers, gas, electricity, telecommunications, will be constructed to service the new buildings.

Development plans (100% Design Development) are included in Appendix A.

Summary of the Remedial Investigations

The findings and conclusions of the RIs are as follows:

1. Stratigraphy: The subsurface consists of non-native historical fill ranging from surface grade to depths of about 7 to 19 feet below grade surface (bgs). The layer is predominately characterized as tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments. A native soil layer consisting of tannish brown to dark-gray sand with varying amounts of silt, clay, gravel, mica, and shells was observed below the non-native historical fill layer throughout the site.
2. Hydrogeology: Groundwater was encountered from elevation (el.) -0.33 to 2.92 feet North American Vertical Datum of 1988 (NAVD88)¹, or about 5.64 to 9.90 feet bgs, and was measured to flow to the west towards the East River.
3. Non-native historical fill: Non-native historical fill, predominantly consisting of tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments, was encountered from beneath the surface cover to depths ranging between about 7 and 19 feet bgs. Contaminants commonly associated with non-native historical fill, including volatile organic compounds (VOC), semivolatile organic compounds (SVOC), pesticides, polychlorinated biphenyls (PCB), and metals were detected at concentrations above Unrestricted Use (UU), Protection of Groundwater (PGW), and/or Restricted Use Restricted Residential (RURR) Soil Cleanup Objectives (SCO) and lead was detected in one boring above the United States Environmental Protection Agency (USEPA) Maximum Concentration of Contaminants for the Toxicity Characteristic in soil samples that were collected from the non-native historical fill layer. The identified contaminants are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses, including coal and lumber storage. Hazardous concentrations of lead were identified in non-native historical fill in soil sample SB05_0-2. Additional delineation sampling in the vicinity of SB05 will be completed as part of the remedy. Petroleum-related VOCs detected in soil and soil vapor and petroleum-related field observations of soil and groundwater are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses. There is no documented history of petroleum bulk storage or discharges of petroleum at the site, and geophysical anomalies associated with underground storage tanks (UST) were not identified.
4. Metals in Groundwater: Total and dissolved-phase metals were detected above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water (SGV) in all groundwater monitoring wells across the site. The total lead concentration in groundwater sample MW10_080522 is likely the result of suspended solids derived from non-native historical fill entrained in the groundwater sample. Both total and dissolved-phase iron, magnesium, manganese, sodium, and thallium may be attributed to

¹ All elevations in this RAWP are presented in reference to NAVD88 vertical datum.

regional conditions. The presence of manganese is attributed to brackish groundwater conditions, considered naturally occurring, and likely related to the proximity of the site to the East River and Newtown Creek.

5. Per- and Poly-fluoroalkyl substances (PFAS) in Groundwater: Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were detected above the NYSDEC SGVs in all groundwater samples during the 2022 RI and ten of the twelve groundwater samples during the 2026 SRI. No historical uses or on-site source of PFOA or PFOS were identified; therefore, the presence of PFOA and PFOS is likely attributed to regional groundwater quality.
6. Chlorinated Volatile Organic Compounds (CVOC) contamination in Soil Vapor: Carbon tetrachloride was detected in four soil vapor sample locations in the western part of the site. This is likely attributed to an unknown on-site source. Other CVOCs were detected in soil and groundwater, but concentrations were below the applicable regulatory criteria.

Sufficient analytical data were gathered during the RIs to establish site-specific soil cleanup levels and to develop a remedy for the site. Based on the RIs, no off-site investigation or remediation is warranted. The final remedy is described in this RAWP, which was prepared in accordance with BCP guidelines. The remedy will address contaminants in non-native historical fill and CVOCs in soil vapor.

Qualitative Human Health Exposure Assessment

Complete exposure pathways have the following five elements: 1) a contaminant source; 2) a contaminant release and transport mechanism; 3) a point of exposure; 4) a route of exposure; and 5) a receptor population. A discussion of the five elements comprising a complete pathway as they pertain to the site is provided below.

Current Conditions

Contaminant sources include 1) non-native historical fill with varying levels of petroleum-related VOCs, SVOCs, PCBs, and metals; 2) historical site uses that may have contributed to the presence of SVOCs and metals in non-native historical fill; and 3) an unidentified on-site source that contributed to CVOC contamination in soil vapor.

Contaminant release and transport mechanisms include contaminated soil transported as dust (dermal, ingestion, inhalation), contaminated groundwater flow (dermal contact), and volatilization of contaminants from the soil and groundwater matrices to the soil vapor phase (inhalation).

Under current conditions, the likelihood of soil, groundwater, or soil vapor exposure to on-site and off-site humans is very limited, as the site is capped with impervious surface cover and no buildings are currently present on-site. Exposure to contaminants in soil, groundwater, and soil vapor via dermal contact, ingestion, or inhalation during site investigation will be minimized, as these activities will occur

under a Health and Safety Plan (HASP). In addition, groundwater is not used as a potable water source and therefore no complete exposure pathway to groundwater exists.

Construction/Remediation Activities

During redevelopment and remediation, points of exposure include disturbed and exposed soil during excavation, dust and organic vapors generated during excavation, and contaminated groundwater that will be encountered during excavation and localized dewatering operations. Routes of exposure include ingestion and dermal absorption of contaminated soil and groundwater, inhalation of organic vapors arising from contaminated soil and groundwater, and inhalation of dust arising from contaminated soil. The receptor populations include construction and remediation workers and, to a lesser extent, the public adjacent to the site.

The potential for completed exposure pathways is present since all five elements exist; however, the risk can be avoided or minimized by applying appropriate health and safety measures during construction and remediation, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, cleaning truck undercarriages before they leave the site to prevent off-site soil tracking, maintaining site security, and having workers wear the appropriate personal protective equipment (PPE).

In accordance with the RAWP, which includes a Construction Health and Safety Plan (CHASP), a Soil/Fill Management Plan (SFMP), and a Community Air Monitoring Plan (CAMP), measures such as conducting an air-monitoring program, donning PPE, covering soil stockpiles, altering work sequencing, maintaining a secure construction entrance, proper housekeeping, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction will be implemented. Such measures will prevent completion of these potential migration pathways.

Proposed Future Conditions

After construction, residual contamination will likely remain on-site in soil, groundwater, and soil vapor within the Track 4 area. Institutional controls (IC) and engineering controls (EC) will be included as elements of the site remedy, including an engineered site-wide composite cover system for the Track 4 area. These controls (absent NYSDEC approval) will be maintained in perpetuity under a Site Management Plan (SMP) and will preclude exposure to on- and off-site receptor populations. No ICs and ECs will be necessary for the Track 1/Track 2 area.

Human Health Exposure Assessment Conclusions

Under current conditions, there is a marginal risk for exposure. The primary exposure pathways are for dermal contact, ingestion, and inhalation of soil, soil vapor, or groundwater by site investigation and

remediation workers. The exposure risks will be avoided or minimized by following the appropriate health and safety measures outlined in the site-specific HASP during ground-intrusive activities.

In the absence of a HASP and CAMP, there is a moderate risk of exposure during construction and remediation. The primary exposure pathways will be:

- Dermal contact, ingestion, and inhalation of contaminated soil, groundwater, and soil vapor by construction workers.
- Dermal contact, ingestion, and inhalation of soil (airborne dust) and organic vapors by the community in the vicinity of the site.

These exposure risks can be avoided or minimized by performing community air monitoring and by following the appropriate health and safety, vapor and dust suppression, and site security measures outlined in a site-specific HASP. As needed, extracted groundwater from the remedial dewatering system will be pretreated and discharged off-site in accordance with appropriate permits.

- The existence of a complete exposure pathway for site contaminants to human receptors during proposed future conditions is unlikely, as ECs and ICs will be implemented pursuant to the proposed remedy (Track 4 area only). Regional groundwater is not used as a potable water source in this part of New York City. The construction of ECs including a site cover system and/or any necessary vapor mitigation systems will mitigate the exposure pathway to contaminants in soil, groundwater, and/or soil vapor (Track 4 area only).
- Regional groundwater is not used as potable water in Kings County so there is no complete exposure to regional groundwater contaminants.
- It is possible that complete exposure pathways exist for the migration of site contaminants to off-site human receptors for current, construction/remediation phase, or future conditions. Monitoring and control measures have been and will continue to be used during investigation and construction to prevent completion of this pathway. Under future conditions, the site will be remediated, and ECs and ICs will be implemented to prevent completion of this pathway (Track 4 area only).

Summary of the Remedy

A split Track1/Track 2 and Track 4 remedy is proposed and will include implementation of the following remedial elements necessary to achieve that remedy:

- 1) Demolition and removal of subsurface obstructions (e.g., remnant foundation elements) and the surface pavements (asphalt and/or concrete) and management of the construction and demolition (C&D) debris in accordance with Part 360 and 361 regulations. Review of the proposed facility and certification of transport C&D debris transport and disposal methodologies is not a requirement of the RE. The RE is responsible for documenting that C&D debris is not commingled with contaminated site soil and fill.

- 2) Development and implementation of a CHASP and CAMP for the protection of on-site workers, visitors, and the environment during remediation activities
- 3) Establishment of site-specific SCOs that include NYSDEC Part 375-list Restricted Use Restricted-Residential SCOs and relevant Protection of Groundwater (PGW) SCOs for Track 4 areas only
- 4) Completion of a waste characterization study to facilitate disposal or beneficial reuse of excavated soil/fill at off-site disposal or receiving facilities.
- 5) Decommissioning existing permanent groundwater monitoring wells at the site in accordance with NYSDEC Commissioner Policy (CP)-43 - The preferred decommissioning method would be to grout all monitoring wells in place with the standard grout mix prescribed in CP-43 via tremie unless the full length of a monitoring well is removed during remedial excavation.
- 6) Design and construction of a support of excavation (SOE) system (soil mix column wall, sheet pile wall, and/or sloped excavation) necessary to undertake the remedial excavation in the Track 1/Track 2 and Track 4 areas
- 7) Design, installation and operation of a remedial dewatering system with an associated pre-treatment system necessary to allow remedial excavation below the groundwater table in the Track 1/Track 2 and Track 4 areas. The dewatering system may require a Water Withdrawal Permit and would require a State Pollutant Discharge Elimination System (SPDES) discharge permit to allow the discharge of the treated effluent to the East River.
- 8) Screening for indications of contamination source areas during any intrusive site work by visual, olfactory, and instrumental (PID) methods
- 9) Excavation, stockpiling, off-site transport and disposal of non-native historical fill and soil to achieve a Track 1/Track 2 remedy in accordance with federal, state, and local rules and regulations for handling, transport, and disposal as follows:
 - Across the footprints of Building C2 and C3 from surface grade to about 15 feet bgs, or about el. -5 - The excavation would be extended as necessary to meet UU SCOs.
 - If a Track 1 remedy is deemed infeasible, a Track 2 Restricted Use Residential remedy will be proposed in the footprints of Building C2 and C3.
- 10) Excavation, stockpiling, off-site transport and disposal of non-native historical fill and soil to achieve a Track 4 remedy for the remainder of the site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal as follows:
 - Across the waterfront access area to at least 2 feet bgs or about el. 0 to 7
 - In localized areas of the waterfront access area, the Connector Road, and Freeman Street to between about 2 and 12 feet bgs, or about el. 6 to -3
 - In localized areas of Building C1 to about 6 to 17 feet bgs, or about el. -7 to +3.5

- Soil exceeding the following criteria would also be removed to the extent practical or otherwise managed in accordance with DER-10 to achieve a Track 4 cleanup:
 - i) Soil exceeding the 6 NYCRR Part 371 hazardous criteria, including the known localized hotspot with soil exhibiting characteristic hazardous concentrations of lead
 - ii) Soil exceeding the RURR SCOs and/or soil with evidence of petroleum or chemical-like impacts (visual, olfactory, and/or PID above background) encountered during other development-related excavation (cellar, pile caps, elevator pits and/or new utility corridors in the Connector Road and Freeman Street) or during the removal of any identified USTs
- 11) If encountered, decommissioning and removal of USTs in accordance with 6 NYCRR Part 613.9 and NYSDEC DER-10 Section 5.5
- 12) Administrative closure of the NYSDEC Spill No. 25-06379 reported on 15 October 2025
- 13) Collection and analysis of:
- Confirmation soil samples within the Track 1/Track 2 area to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs at frequency of one sample per 900 square feet
 - Documentation soil samples in the Track 4 area to document remaining soil quality - Documentation soil samples would include post-excavation soil samples in excavation areas and pre-cap documentation soil samples in areas where there is no excavation and only placement of imported fill. Documentation soil samples would be collected from the excavation base at a frequency of one per 900 square feet within the footprint of Building C1, every 2,000 square feet in the waterfront access area and private amenity terrace, and every 1,500 square feet in other areas of the site including the Connector Road and Freeman Street.
- 14) Demarcation of residual (existing) non-native historical fill or soil through a survey by a professional land surveyor licensed in the State of New York and placement a high-visibility demarcation barrier for visual reference outside of the footprints of Buildings C1, C2 and C3 across the entire Track 4 area including the waterfront access area, private amenity terrace, Connector Road and Freeman Street
- 15) Import of soil and fill for composite cover and backfill, where required, in compliance with: a) RURR SCOs or NYSDEC Part 375-6.8(b) Protection of Groundwater (PGW) SCOs, whichever is more stringent; b) 6 NYCRR Part 360 regulations; c) federal, state, and local rules and regulations for handling and transport of soil and fill; and d) Guidelines for Sampling and Analysis of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (April 2023) - Imported soil and fill are subject to approval by the NYSDEC project manager and may require sampling as listed in DER-10 Section 5.4.

- 16) Design, construction, and operation of a submembrane depressurization (SMD) system with an integrated continuous waterproofing membrane/vapor barrier below the foundation of Building C1 to mitigate soil vapor intrusion
- 17) Design and construction of a composite cover system to mitigate exposure pathways to remaining contaminated soil in the Track 4 areas of the site. The composite cover system will consist of the following components:
 - 12-to-20-inch-thick concrete foundation slab and its underlying aggregate subbase and 12-to-24-inch-thick foundation walls for Building C1;
 - Hardscaped walkways, sidewalks and roadways (Connector Road and Freeman Street) with surface concrete and/or an underlying concrete slab base of varying thickness; and/or
 - Landscaped areas with at least 2 feet of clean soil/fill that meets the lower of the RURR and PGW SCOs or virgin quarry stone
- 18) Completion of a post-construction soil vapor intrusion (SVI) evaluation related to the operation of the vapor mitigation system in Building C1
- 19) Preparation and submission of a Final Engineering Report (FER) to NYSDEC following implementation of the Remedial Action defined in this RAWP (see Section 7.4)
- 20) Recording of an Environmental Easement (EE) for the Track 4 area to memorialize the remedial action and the ICs to enforce that future owners of the site continue to maintain these controls as required
- 21) Preparation of an SMP that describes management of the ICs and ECs for the Track 4 area only. Implementation of the SMP following completion of the remedy will be stipulated by the EE.

1.0 INTRODUCTION

GPLC HoldCo LLC, GPLC Member LLC, and GPLC Owner LLC (the Participants) are enrolled in the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP) and are responsible for the investigation and remediation of the proposed development located at 21 Freeman Street, 37 Freeman Street, and 209 West Street in Brooklyn, New York, otherwise referred to as C Block (the site). The Participants were accepted into the NYSDEC BCP to investigate and remediate the site pursuant to the NYSDEC Brownfield Cleanup Agreement (BCA) executed on 9 December 2025 (Index No. C224435-09-25). BCP Site No. C224435 was assigned to the site.

The site is also under the regulatory jurisdiction of the New York City Office of Environmental Remediation (NYCOER) pursuant to the Greenpoint-Williamsburg Rezoning dated 11 May 2005 (CEQR No. 04DCP003K), which placed E-Designations for Hazardous Materials and Noise (E-138) on the tax lots comprising the site. The E-Designation includes environmental restrictions during development for hazardous materials and noise (i.e., window wall attenuation and alternate means of ventilation requirements). The project intends to address the Hazardous Materials E-Designation requirements through the BCP and a Noise Remedial Action Plan (RAP) will be presented to the NYCOER under separate cover to address the Noise E-Designation requirements.

This Remedial Action Work Plan (RAWP) identifies and evaluates remedial action alternatives and presents the preferred split Track 1/Track 2 and Track 4 remedy. If a Track 1 remedy is deemed infeasible, a Track 2 Restricted Use Residential (RUR) remedy will be proposed in the footprints of Building C2 and C3. The proposed remedy was developed based on data gathered during the Remedial Investigation (RI) for C Block completed by Langan between 25 July and 5 August 2022 and the Supplemental Remedial Investigation (SRI) for C Block completed by Langan between 12 and 14 January 2026 (collectively referred to as the RIs). The remedy described in this document is consistent with the procedures defined in the NYSDEC Program Policy Division of Environmental Remediation (DER) Technical Guide for Site Investigation and Remediation (DER-10), and Green Remediation (DER-31), and complies with applicable federal, state, and local laws, regulations, and requirements.

1.1 Site Location and Description

The site is about 163,000 square feet (± 3.74 acres) in area and is located at 21 Freeman Street (Building C1), 37 Freeman Street (Building C2), and 209 West Street (Building C3) in the Greenpoint neighborhood of Brooklyn, New York. The site is identified on the Brooklyn Borough Tax Map as Block 2502, part of (p/o) Lot 1 and p/o Lot 5, and Block 2510, p/o Lot 1 and p/o Lot 100. The site is currently a paved and vacant parcel of land. A site location map is presented as Figure 1 and a site plan is presented as Figure 2.

The site is bound by Greenpoint Landing Parcel D (Block 2472, Lots 2, 3, 4, 21 and 23, Block 2502, Lot 2 and part of Lot 5) to the north; West Street to the east, a parking lot to the south, and the East River to the west. The northern-adjointing property (Greenpoint Landing Parcel D) was enrolled in the NYCOER

Voluntary Cleanup Program (VCP) as Site No. 19CVCP053K. The Greenpoint Landing Parcel D site received its Certificate of Completion (COC) in February 2023.

1.2 Redevelopment Plan

As currently conceived, the project will include construction of three new residential buildings named C1, C2, and C3:

- The C1 building will be a 470-foot tall (40-story plus bulkhead) high-rise residential tower with a 10-story podium and a partial cellar level for back-of-house space, storage, and a swimming pool.
- The C2 building will be a 300-foot-tall (30-story plus bulkhead) residential tower with two full-cellar levels used for vehicle parking, tenant storage, and/or building systems/maintenance.
- The C3 building will be a 100-foot tall, 12-story mixed-use residential and commercial building with a full-cellar level used for vehicle parking, amenities, tenant storage, and/or building systems/maintenance.

The cellar levels of Buildings C2 and C3 will be connected. The residential units in the C1, C2, and C3 buildings will be a mix of market-rate and affordable units under Affordable NY and inclusionary housing programs (overall about 70% market rate and 30% affordable). There will be new public access sidewalks and roadways along Freeman Street and a private internal connector road that will transect the site in a north-south direction to the adjoining cul-de-sac at the western end of Eagle Street. The sidewalks and roadways will include street lighting, trees, and plantings. The shoreline along the East River will be stabilized and the waterfront will be developed into a public park/esplanade, including about 32,740-square-feet of public waterfront, shore public walkway, upland connection, and view corridor, that will be transferred to the City of New York upon completion. Shoreline stabilization also includes installation of a 450 linear-foot steel bulkhead along the western edge of the BCP boundary. New utilities, including water, sanitary and storm sewers, gas, electricity, telecommunications, will be constructed to service the new buildings.

Development plans (100% Design Development) are included in Appendix A.

1.3 Description of Surrounding Properties

According to the New York City Planning Commission Zoning Map 12c, the site is located within R6, R8, and C2-4 zoning districts. The following is a summary of surrounding property use:

Direction	Adjoining and Adjacent Properties			Surrounding Properties
	Block No.	Lot No.	Description	
North	2502	2, 5	Eagle Street	Open space & outdoor recreation and Newtown Creek
	2472	2, 3, 4, 21, and 23	Mixed residential & commercial buildings, open space & outdoor recreation, and part of Eagle Street	

Direction	Adjoining and Adjacent Properties			Surrounding Properties
	Block No.	Lot No.	Description	
East	2503	1	West Street followed by commercial & office buildings	Mixed residential & commercial buildings and multi-family walk-up buildings
South	2510	1	Miscellaneous - Other (Z9)	Industrial & manufacturing and mixed residential & commercial buildings
West	East River			

Major infrastructure (storm and sanitary sewers and other underground utilities) exists within the streets surrounding the site. Land use within a half-mile radius of the site is urban and includes residential, commercial, industrial, and institutional uses, and parks. The nearest ecological receptors are the East River (located adjoining to the west of the site) and Newtown Creek (located about 0.2 miles north/northeast of the site). Sensitive receptors, as defined in NYSDEC DER-10, within a half mile of the site include those listed below:

Number	Name (Approximate distance from site)	Address
1	Greenpoint Landing Esplanade (<1 foot northwest)	Near: 1 Eagle Street Brooklyn, New York
2	East River (<1 foot west; western site boundary)	N/A
3	Bunny Hill Greenpoint Daycare and Preschool (about 65 feet north)	213 West Street Brooklyn, New York
4	Greenpoint Childcare (about 0.1 miles south)	145 West Street Brooklyn, NY 11222
5	Newton Barge Playground (about 0.1 miles north)	3 Commercial Street Brooklyn, New York
6	Green Point Public Park (about 0.1 miles south)	143 India Street Brooklyn, New York
7	Greenpoint Playground (about 0.1 miles northeast)	243 Franklin Street Brooklyn, New York
8	Public Park Playground (about 0.1 miles south)	21 India Street Brooklyn, New York
9	WNYC Transmitter Park (about 0.1 miles south)	Greenpoint Ave, Brooklyn, NY 11222
10	Carrusel Child Care Center 2 (about 0.2 miles southeast)	167 Franklin Street Brooklyn, NY 11222

Number	Name (Approximate distance from site)	Address
11	Newtown Creek (about 0.2 miles north)	N/A
12	Greenpoint Garden Playhouse (about 0.2 miles southeast)	53 India Street Brooklyn, New York
13	Hunter's Point South Park and Kayak Ramp (about 0.2 miles north)	Near: 5627 2nd Street Long Island City, New York
14	Java Street Community Garden (about 0.2 miles northeast)	59 Java St, Brooklyn, NY 11222
15	Building Blocks of Greenpoint (about 0.3 miles south)	44 Kent St, Brooklyn, NY 11222
16	American Playground (about 0.3 miles southeast)	Milton St & 81 Franklin St, Brooklyn, NY 11222
17	The Goddard School of Greenpoint (about 0.3 miles northeast)	85 Commercial Street, Brooklyn, NY 11222
17	Carrusel Child Care Center Brooklyn (about 0.36 miles southeast of the site)	168 Java Street Brooklyn, NY 11222
18	Helen Owen Carey Residence (about 0.4 miles east)	174 Java St, Brooklyn NY 11222
19	Iglesia Pentecostal El Tabor (about 0.4 miles east)	256 Franklin St #2R, Brooklyn NY 11222
20	Greenpoint Reformed Church (about 0.4 miles southeast)	136 Milton St, Brooklyn, NY 11222
21	Greenpoint Shul (about 0.4 miles southeast)	108 Noble St, Brooklyn, NY 11222
22	Green Bean Day Care & Learning Center (about 0.46 miles southeast)	161 Greenpoint Avenue Brooklyn, NY 11222

1.4 Environmental History

Coal, lumber, and masonry materials storage were the primary uses of the site for more than 100 years from the late 1800s until circa 2000. In 1916, the southeastern part of the site was occupied by a manufacturing and packing facility. The Newton Creek Corporation occupied part of the site in 1922, and Newtown Creek Coal and Coke Co. Inc. occupied part of the site in 1928. Parts of the site appeared to have been vacant from 1916 through the 1940s. The site was again used for lumber storage from the early 1950s to circa 2000. The site has been used by various commercial and industrial tenants since the early 2000s, including Bay Crane and other tenants using the property for parking and storage of construction materials and equipment.

1.4.1 Previous Environmental Reports

Environmental reports prepared for the site include the following:

1. *July 2001 Phase I Environmental Site Assessment Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.*
2. *October 2001 Phase II Site Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.*
3. *April 2004 Supplemental Subsurface (Phase II) Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.*
4. *July 2025 Phase I Environmental Site Assessment Report – C Block, Brooklyn, New York, prepared by Langan*
5. *Draft January 2026 Remedial Investigation Report – C Block, Brooklyn, New York, prepared by Langan*

Reports are summarized below, and available reports are included in Appendix B.

July 2001 Phase I ESA Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.

AKRF, Inc. was retained by Park Tower Realty Corporation to perform an Environmental Site Assessment (ESA) of a 22-acre former lumber storage yard in the Greenpoint neighborhood of Brooklyn, New York (the subject property). The upland acres that comprise the former lumber storage yard are the Greenpoint Landing development property and include Parcel C.

Specific to the site, coal, lumber, and masonry material storage were the primary uses of the site for more than 100 years from the late 1800s until circa 2000. In 1916, the southeastern part of the site was occupied by a manufacturing and packing facility. Parts of the site appeared to have been vacant between 1916 through the 1940s. The site was again used for lumber storage from the early 1950s to circa 2000. At the time of the Phase I ESA, the site was used for the storage of construction materials and equipment and repossessed vehicles. Several 55-gallon drums of hydraulic oil, resins, and/or lubricators were observed at the site during the site reconnaissance.

The Phase I concluded that releases of petroleum or hazardous substances may be present on the former lumber storage yard (including the site) as the result of historical uses of the subject property and surrounding area.

October 2001 Phase II Site Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.

This investigation was performed across the Greenpoint Landing development property and included the completion and sampling of two soil borings (B3 and MW-2) and the completion of and sampling of one monitoring well (MW-2) within Parcel C. Soil samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals. Soil samples were not analyzed for polychlorinated biphenyls (PCBs), pesticides, or herbicides.

A summary of the observations and results of the soil and groundwater sampling is provided below:

- Non-native historical fill was identified in both borings completed at the site and was composed of varying amounts of sand and silt with ash, brick, coal, concrete, schist, slag, and wood. Non-native historical fill was observed immediately below the asphalt pavement to boring termination depths of about 10 feet below ground surface (bgs) in boring B3 and to about 7 feet bgs in boring MW2. Non-native historical fill was underlain by native soil composed of brown and black sandy silt. An organic/petroleum-like odor was observed between 5 feet bgs to boring termination depth (about 11 feet bgs) in boring MW2.
- One VOC, acetone (a common laboratory artifact), was detected above the NYSDEC Part 375-6.8(b) Unrestricted Use (UU) Soil Cleanup Objectives (SCOs) in soil samples collected from boring MW2. Eight SVOCs (di-n-butyl phthalate, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, and dibenzo(a,h)anthracene) exceeded the UU and/or NYSDEC Part 375-6.8(b) Restricted Use Restricted-Residential (RRU) SCOs in soil samples collected from the two borings. Total SVOCs were detected at a maximum concentration of 12,992 milligrams per kilogram (mg/kg) in a sample collected from the 8- to 10-foot interval in boring B3. Three metals (copper, lead, and/or zinc) were detected above the UU SCOs in soil samples collected from the two borings.

VOCs and SVOCs were not detected in groundwater samples. Thirteen metals (antimony, barium, chromium, copper, iron, lead, magnesium, manganese, mercury, nickel, silver, sodium, and zinc) exceeded the NYSDEC Technical & Operational Guidance Series (TOGS) Ambient Water Quality Standards and Guidance Values (SGVs) for Class GA water at total concentrations and six metals (barium, iron, magnesium, manganese, sodium, and zinc) exceeded the NYSDEC SGVs at dissolved concentrations in the groundwater sample collected from MW2.

April 2004 Supplemental Subsurface (Phase II) Investigation Report – Greenpoint Lumber Yard, Brooklyn, New York, prepared by AKRF, Inc.

This investigation was also performed across the Greenpoint Landing development property and included the completion of four soil borings (B8, B9, B10, and B11) and collection of eight soil samples within Parcel C. Soil samples were analyzed for VOCs, SVOCs, PCBs, pesticides, and metals. Soil samples were not analyzed for herbicides.

Non-native historical fill was identified in all four borings and was composed of varying amounts of sand, silt, gravel, and clay with brick, coal, concrete, metal, slag, and wood. Non-native historical fill was observed directly below the asphalt cap to depths ranging from 6.5 to 15 feet bgs. Non-native historical fill was underlain by native soil composed of varying amounts of sand and silt. A petroleum-like odor was observed at about 6 feet bgs in boring B10 and about 2 feet bgs in boring B11.

No VOCs were detected above the UU or RRU SCOs. Sixteen SVOCs (acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene,

benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, and/or pyrene) exceeded the UU and/or RRU in soil samples collected from the four borings. Total SVOCs were detected at a maximum concentration of 4,691.36 mg/kg in a sample collected from the 5- to 7-foot interval in boring B10. Total PCBs exceeded the UU SCOs in soil samples collected from B9, B10, and B11. Three pesticides (4,4'-DDD, 4,4'-DDE, and/or 4,4'-DDT) exceeded the UU SCOs in soil samples collected from the four borings. Eight metals (arsenic, barium, cadmium, copper, lead, mercury, nickel, and zinc) exceeded the UU and/or RRU SCOs in soil samples collected from the four borings.

July 2025 Phase I Environmental Site Assessment Report – C Block, Brooklyn, New York, prepared by Langan

Langan completed a Phase I ESA in accordance with the scope and limitations of the American Society for Testing and Materials (ASTM) standard E1527-21 for the property located at 21 Freeman Street, 37 Freeman Street, and 209 West Street in, Brooklyn, New York (the subject property) on behalf of the Participants.

The Phase I ESA concluded that the subject property is underlain by a layer of non-native historical fill based on the draft Remedial Investigation Report (RIR) prepared by Langan. Contaminants commonly associated with non-native historical fill, including SVOCs, PCBs, pesticides, and metals, were detected at concentrations above UU, Protection of Groundwater (PGW), and Restricted Use Restricted-Residential (RURR) SCOs and lead was detected above the United States Environmental Protection Agency (USEPA) Maximum Concentration of Contaminants for the Toxicity Characteristic in soil samples collected from the non-native historical fill layer. Non-native historical fill at the subject property will require special soil handling, management, and off-site disposal procedures during any future development. The handling, management, and disposal of non-native historical fill will result in a cost premium during redevelopment.

The tax lots comprising the subject property are subject to E-138 for hazardous materials and noise. E-Designations can impart a material cost impact on any future development or construction activity.

The findings of the RIs prepared by Langan are summarized in Section 2.0.

2.0 DESCRIPTION OF THE FINDINGS OF THE REMEDIAL INVESTIGATIONS

The RI for C Block was completed between 25 July and 5 August 2022 to investigate and characterize the nature and extent of environmental impacts at the site and provide sufficient information to evaluate remedial alternatives and actual and potential threats to human health and the environment. The data from the RI was used to define the areas of concern (AOC) that are addressed by this RAWP and summarized in Section 2.4.1. The RI was conducted in accordance with Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 375 and NYSDEC DER-10 (May 2010). In April 2023, the NYSDEC released new guidance for Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) under NYSDEC's Part 375 Remedial Programs. Langan, on behalf of the Participants, performed the SRI to collect additional groundwater samples for analysis of the full suite of PFAS compounds outlined in the April 2023 guidance. The SRI was conducted in accordance with the NYSDEC-approved 8 January 2026 Supplemental Remedial Investigation Work Plan (SRIWP). The findings of the SRI are incorporated herein and are presented in the Draft 30 January 2026 RIR. The Draft RIR is included in Appendix B.

2.1 Summary of the Remedial Investigations

The 2022 RI and the 2026 SRI are documented in the Draft 30 January 2026 RIR for C Block prepared by Langan. The RIs included the advancement of soil borings; installation of groundwater monitoring wells; installation of soil vapor probes; and collection of soil, groundwater, and soil vapor samples.

The RI consisted of the following:

- Geophysical survey to identify subsurface anomalies consistent with utilities, substructures, physical obstructions, and underground storage tanks (USTs), and to pre-clear soil boring locations;
- Advancement of 28 soil borings (SB01 through SB28) and collection of 66 soil samples plus quality assurance/quality control (QA/QC) samples;
- Installation of 13 permanent groundwater monitoring wells and collection of 13 groundwater samples plus QA/QC samples;
- Installation of 12 temporary soil vapor points and collection of 12 soil vapor samples plus QA/QC samples; and
- Survey and synoptic groundwater gauging of newly installed monitoring wells to evaluate the elevation and flow of groundwater.

The SRI included the collection of 12 groundwater samples plus QA/QC samples from 12 existing groundwater monitoring wells. Soil, groundwater, and soil vapor sample analytical results from the RIs are presented on Figures 3A, 3B, 4, and 5.

During the NYSDEC review of the BCP application, a petroleum spill was reported on 15 October 2025 based on the field observations recorded in several soil borings during the 2022 RI. The NYSDEC assigned Spill No. 25-06379 to the case.

The findings and conclusions of the RIs are as follows:

1. Stratigraphy: A non-native historical fill layer was observed from beneath the surface cover to depths ranging from about 7 to 19 feet bgs and consisted of tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments. The non-native historical fill layer is underlain by native soil consisting of tannish brown to dark-gray sand with varying amounts of silt, clay, gravel, mica, and shells. Bedrock was not encountered during the RIs or previous environmental investigations conducted at the site; however, bedrock was encountered during a geotechnical investigation at about 55 to 108 feet below existing grade.
2. Hydrogeology: During the RI, groundwater was encountered between 5.64 and 9.50 feet bgs and groundwater elevations (el.) ranged from 0.20 to 2.92 feet North American Vertical Datum of 1988 (NAVD88) in thirteen monitoring wells installed across the site. During the SRI, groundwater was observed at depths ranging from 7.75 to 9.90 feet bgs and groundwater elevations ranged

from about el. -0.33 to 2.28 NAVD88 in eleven monitoring wells. Groundwater flows to the west towards the East River.

3. Non-native historical fill: Contaminants commonly associated with non-native historical fill, including VOCs, SVOCs, PCBs, pesticides, and metals, were detected at concentrations above UU, PGW, and RURR SCO and lead was detected above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic in soil samples collected from the non-native historical fill layer. These contaminants are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses, including coal and lumber storage.

Hazardous concentrations of lead were identified in non-native historical fill in soil sample SB05_0-2. Additional delineation sampling in the vicinity of SB05 will be completed as part of the remedy.

Petroleum-related VOCs detected in soil and soil vapor and petroleum-related field observations of soil and groundwater are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005) industrial uses. There is no documented history of petroleum bulk storage or discharges of petroleum at the site and geophysical anomalies associated with USTs were not identified.

4. Metals in Groundwater: Total and dissolved-phase metals were detected above the NYSDEC SGVs in all groundwater monitoring wells across the site. The total lead concentration in groundwater sample MW10_080522 is likely the result of suspended solids derived from non-native historical fill entrained in the groundwater sample. Both total and dissolved-phase iron, magnesium, manganese, sodium, and thallium may be attributed to regional conditions. The presence of manganese is attributed to brackish groundwater conditions, is considered naturally occurring, and likely related to the proximity of the site to the East River and Newtown Creek.
5. PFAS in Groundwater: Perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS) were detected above the NYSDEC TOGS SGVs in all groundwater samples during the 2022 RI and ten of the twelve groundwater samples during the 2026 SRI. No historical uses or on-site source of PFOA or PFOS were identified; therefore, the presence of PFOA and PFOS is likely attributed to regional groundwater quality.
6. Chlorinated Volatile Organic Compounds (CVOOC) contamination in Soil Vapor: Carbon tetrachloride was detected in four soil vapor sample locations in the western part of the site. This is likely attributed to an unknown on-site source. Other CVOOCs were detected in soil and groundwater, but concentrations were below the aforementioned applicable regulatory criteria.

Sufficient analytical data were gathered during the RIs to establish site-specific soil cleanup levels and to develop a remedy for the site. Based on the RIs, no off-site investigation or remediation is warranted. The final remedy is described in this RAWP, which was prepared in accordance with BCP guidelines. The remedy will address contaminants in non-native historical fill and CVOOCs in soil vapor.

The field observations and analytical data set from the RIs do not warrant the classification of this site as a significant threat site.

2.2 Geological Conditions

2.2.1 Regional and Site Geology

The surficial geology in the vicinity of the site generally consists of glacial and fluvial soil deposits, as well as anthropogenic fill. The glacial deposits, commonly referred to as outwash deposits, ground moraine, or till, are a widespread dense layer typically consisting of heterogeneous mixtures of clay, silt, sand, gravel, and boulders.

According to the United States Geological Survey (USGS) “Bedrock and Engineering Geology Maps of New York County, and parts of Kings and Queens Counties, New York, and parts of Bergen and Hudson Counties, New Jersey”, bedrock stratigraphy in the area consists of Ravenswood Granodiorite of the Middle Ordovician to Middle Cambrian Age and Hartland Formation of the Middle Ordovician to Lower Cambrian Age. Ravenswood Granodiorite typically consists of medium- to dark-gray, sillimanite-garnet-pink microcline-plagioclase-biotite-muscovite-quartz and biotite-hornblende-orthoclase layered gneiss. The Hartland formation typically consists of gray sillimanite-garnet-microcline gneiss and fine-grained biotite-muscovite-quartz schist interlayered with quartz-plagioclase-muscovite pegmatite, hornblende amphibolite, and coarse granoblastic-textured amphibolite gneiss. Bedrock was not encountered during the RIs or previous environmental investigations; however, bedrock was encountered during a geotechnical investigation at about 55 to 108 feet below existing grade.

Based on the observations of the RIs, the site is underlain by non-native historical fill, predominantly consisting of tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments that generally extends from surface grade to between about 7 and 19 feet bgs. The non-native historical fill is followed by glacial outwash deposits (sand layers with silt and/or clay lenses).

2.2.2 Regional and Site Hydrogeology

Groundwater flow is typically topographically influenced, as shallow groundwater tends to originate in areas of topographic highs and flows toward areas of topographic lows, such as rivers, stream valleys, ponds, and wetlands. A broader, interconnected hydrogeological network often governs groundwater flow at depth or in the bedrock aquifer. Groundwater depth and flow direction are also subject to hydrogeologic and anthropogenic variables such as precipitation, evaporation, extent of vegetation cover, and coverage by impervious surfaces. Other factors influencing groundwater include depth to bedrock, the presence of artificial fill, and variability in local geology and groundwater sources or sinks.

Infiltration of precipitation to the water table is likely minimal due to the presence of impervious surfaces throughout the site. Stormwater runoff is expected to flow towards the East River to the west. Groundwater in New York City is not used as a potable water source. Potable water provided to New York City is derived from surface impoundments in the Croton, Catskill, and Delaware watersheds.

Groundwater was observed at depths ranging from 5.64 to 9.50 feet bgs and groundwater elevations ranged from about el. 0.20 to 2.92² based on synoptic groundwater level measurements collected from 13 wells during the 2022 RI. During the 2026 SRI, groundwater was observed at depths ranging from 7.75 to 9.90 feet bgs and groundwater elevations ranged from about el. -0.33 to 2.28 based on groundwater level measurements collected from 11 wells.³ Groundwater generally flows to the west towards the East River. A groundwater elevation contour and flow direction map is presented as Figure 6.

2.3 Conceptual Model of Site Contamination

A conceptual site model (CSM) was developed based on the findings of the RIs, and previous investigations to produce a simplified framework for understanding the distribution of impacted materials, potential migration pathways, and potentially complete exposure pathways.

2.3.1 Potential Sources of Contamination

Potential sources of contamination include non-native historical fill, historical site use, and an unknown on-site source of CVOC contamination.

Non-native historical fill – The site-wide presence of non-native historical fill was established as a source of petroleum-related VOCs, SVOCs, PCBs, and metals in soil, including detections of hazardous lead concentrations, a source of SVOCs in groundwater, and a source of petroleum-related VOCs in soil vapor.

Prior Site Use – Historical site use as a coal and lumber storage yard was established as a source of SVOCs and/or metals in soil.

Unknown Source of CVOCs – CVOC concentrations in soil vapor are likely attributed to an unknown on-site source.

2.3.2 Exposure Media

Impacted media includes soil, groundwater, and soil vapor. Soil contains VOCs, SVOCs, pesticides, PCBs, and metals at concentrations above regulatory standards. SVOCs, metals, and PFAS were identified in groundwater above regulatory criteria. VOCs, including petroleum-related VOCs and CVOCs, were detected in soil vapor at the site.

2.3.3 Receptor Populations

Site access is currently limited to authorized personnel. Under future construction conditions, human receptors may include construction and remediation workers, authorized guests, and the public adjacent to the site. Under future use conditions, human receptors include residents, visitors, and the public adjacent to the site.

² North American Vertical Datum of 1988 (NAVD88)³ Monitoring well MW07 could not be located and MW09 was not accessible at the time of gauging.

³ Monitoring well MW07 could not be located and MW09 was not accessible at the time of gauging.

2.4 Contamination Conditions

This section evaluates the nature and extent of soil, groundwater, soil vapor, and sub-slab vapor contamination. The nature and extent of the contamination is derived from a combination of field observations and analytical data that were discussed in the Draft RIR.

2.4.1 Areas of Concern

The following Post-RI AOCs were identified and are described below.

2.4.1.1 *RI AOC-1: Historical Site Use and Non-native Historical Fill*

Based on the analytical results and field observations, non-native historical fill was identified from surface grade to depths between about 7 and 19 feet bgs.

Contaminants commonly associated with non-native historical fill, including SVOCs, PCBs, pesticides, and metals were detected at concentrations above UU, Protection of Groundwater PGW, and RURR SCOs and above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic (lead only) in soil samples collected from the non-native historical fill layer and these contaminants are likely attributed to non-native historical fill quality and/or historical industrial uses, including coal and lumber storage.

Petroleum-related VOCs detected in soil and soil vapor and petroleum-related field observations in soil and groundwater are likely attributed to residual petroleum contamination from an unidentified source. There is no documented history of petroleum bulk storage or discharges of petroleum at the site and geophysical anomalies indicative of a UST were not identified; therefore, the residual petroleum contamination is likely attributed to an unidentified site source.

Lead was identified in non-native historical fill in soil sample SB05_0-2 above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic. Additional delineation sampling in the vicinity of SB05 is anticipated in conjunction with the remedy. The lead concentration identified above regulatory criteria in groundwater at MW10 is likely the result of suspended solids derived from non-native historical fill entrained in the groundwater sample. The lead concentration in MW10 is not likely the result of lead concentration in soil sample SB05_0-2 that is above the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic because SB05 is about 200 feet away from MW10 and is located cross-gradient and the sample was collected below impervious site cover. Other metals identified in groundwater above the regulatory criteria are likely attributed to regional conditions.

2.4.1.2 *RI AOC-2: CVOC-Impacted Soil Vapor*

Carbon tetrachloride was detected at concentrations ranging from 170 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) to 4,230 $\mu\text{g}/\text{m}^3$ in four soil vapor sample locations in the western part of the site. This is likely attributed to an unknown on-site source. Other CVOCs were detected in soil and groundwater, but concentrations were below the applicable regulatory criteria.

2.4.2 Soil Contamination

Soil contamination, characterized by field observations and soil sample analytical results exceeding UU, PGW, and/or RURR SCOs, is attributed to the presence of non-native historical fill and/or historical site uses except for acetone concentrations in soil. Acetone is a common laboratory contaminant and the presence of acetone in soil samples is unlikely to be related to non-native historical fill quality.

2.4.2.1 Historical Site Use and Non-Native Historical Fill

Non-native historical fill, predominantly consisting of tannish brown to black fine-grained sand with varying amounts of gravel, silt, clay, brick, asphalt, concrete, glass, coal, coal ash, slag, wood, mortar, ceramics, organics, and shell fragments, was encountered from site grade to depths ranging between about 7 and 19 feet bgs. The non-native historical fill layer contains VOCs, SVOCs, pesticides, PCBs, and metals at concentrations above UU, PGW, and/or RURR SCOs and the USEPA Maximum Concentration of Contaminants for the Toxicity Characteristic and these contaminants are likely attributed to non-native historical fill quality or historical industrial uses, including coal and lumber storage as a lumber storage yard. Petroleum-related VOCs detected in soil and petroleum-related field observations in soil are likely attributed to non-native historical fill quality and/or historical industrial uses. There is no documented history of petroleum bulk storage or discharges of petroleum at the site and geophysical anomalies indicative of a UST were not identified. Petroleum-related VOCs were not identified in groundwater above the NYSDEC SGVs and therefore the petroleum-related VOCs detected in soil are not viewed as an on-site source.

A petroleum spill (Spill No. 25-06379) was reported on 15 October 2025 on account of these field observations and analytical data during the Department's review of the BCP application.

2.4.3 Groundwater Contamination

Groundwater contamination, characterized by field observations and groundwater sample analytical results exceeding NYSDEC SGVs, is attributed to non-native historical fill quality, historical (i.e., pre-2005) industrial uses, including coal storage, and regional conditions.

2.4.4.1 Petroleum-Impacted Groundwater

Petroleum-related VOCs were not detected in groundwater; however, a petroleum odor was noted during sampling at MW03, and sheen was observed in MW03 and MW06. No free phase petroleum was observed in groundwater monitoring wells. The field observations are most likely a result of non-native historical fill and/or historical (i.e., pre-2005) industrial use; it could also be the result of organics derived from the site's former condition as marshland and/or iron bacteria (note: no petroleum-related VOCs were identified in groundwater in the wells where the odors and sheens were observed). There is no documented history of petroleum bulk storage or discharges of petroleum at the site and geophysical anomalies indicative of a UST were not identified; therefore, the physical indicators of residual petroleum contamination are likely attributed to non-native historical fill quality and/or historical (i.e., pre-2005)

industrial uses. The lack of petroleum-related VOCs in groundwater reflects the immobility of VOCs in non-native historical fill and the lack of impacts to groundwater resources.

2.4.4.2 SVOCs in Groundwater

Total and dissolved-phase SVOCs were detected above the NYSDEC SGVs in all groundwater monitoring wells across the site. SVOC concentrations (in both the total and dissolved-phase state) are likely attributed to non-native historical fill quality or historical (i.e., pre-2005) industrial uses, including coal storage.

2.4.4.3 Metals in Groundwater

Five total metals (iron, lead, magnesium, manganese, and sodium) and five dissolved-phase metals (iron, magnesium, manganese, sodium, and thallium) were detected above the NYSDEC SGVs in all groundwater monitoring wells across the site. Total lead was detected above the NYSDEC SGV of 25 micrograms per liter ($\mu\text{g/L}$) in groundwater collected from monitoring well MW10. The total lead concentration in groundwater sample MW10_080522 is likely the result of suspended solids derived from non-native historical fill entrained in the groundwater sample. Both total and dissolved-phase iron, magnesium, manganese, sodium, and thallium may be attributed to regional conditions. The presence of manganese is attributed to brackish groundwater conditions, is considered naturally occurring, and is related to the proximity of the site to the East River and Newtown Creek.

2.4.4.4 PFAS in Groundwater

PFOA and PFOS were detected above the NYSDEC SGVs in all groundwater samples collected for the 2022 RI and ten of the twelve groundwater samples collected for the 2026 SRI. No historical uses or on-site source of PFOA or PFOS in soil was identified; therefore, the presence of PFOA and PFOS in groundwater is likely attributed to regional groundwater quality.

2.4.4 Soil Vapor Contamination

Several petroleum-related VOCs were detected in vapor samples collected across the site. The four petroleum-related VOCs detected at notable concentrations (benzene [max. 233 $\mu\text{g}/\text{m}^3$], cyclohexane [max. 187 $\mu\text{g}/\text{m}^3$], n-heptane [max. 2,860 $\mu\text{g}/\text{m}^3$], and n-hexane [max. 2,460 $\mu\text{g}/\text{m}^3$]) were detected in one or more of the 12 soil vapor sample locations in the western part of the site. In most sample locations where petroleum-related VOCs were detected in soil vapor, petroleum-related VOCs were also detected in nearby soil samples. Therefore, the petroleum-related VOC concentrations in soil vapor are likely attributed to isolated residual petroleum-impacted soil. There is no documented history of petroleum bulk storage or discharges of petroleum at the site.

Carbon tetrachloride was detected in four soil vapor sample locations in the western part of the site. This is likely attributed to an unknown on-site source. Other CVOCs were detected in soil and groundwater, but concentrations were below the applicable regulatory criteria.

2.5 Qualitative Human Health Exposure Assessment

Human health exposure risk was evaluated for current and future site and off-site conditions, in accordance with NYSDEC DER-10. The assessment includes an evaluation of potential sources and migration pathways of site contamination, potential receptors, exposure media, and receptor intake routes and exposure pathways.

In addition to the human health exposure assessment, NYSDEC DER-10 requires an on-site and off-site Fish and Wildlife Resources Impact Analysis (FWRIA) if certain criteria are met. The RIs did not identify fish and wildlife resources.

2.5.1 Current Conditions

The site encompasses about 163,000 square-feet (± 3.74 acres) and is currently a vacant parcel of land. The site footprint is covered by impervious asphalt pavement; therefore, exposure to contaminated soil/fill and soil vapor is not anticipated except through cracks or holes in asphalt via dermal absorption, inhalation, and/or ingestion pathways. Groundwater in this area of New York City is not used as a potable water source.

There is a potential exposure pathway to contaminated soil/fill, groundwater, and soil vapor during site investigation through dermal absorption, inhalation, and/or ingestion. Activity is limited to trained investigation personnel and is performed under a site-specific Health and Safety Plan (HASP) with provisions to minimize exposure risk.

Contaminant sources include 1) non-native historical fill with varying levels of petroleum-related VOCs, SVOCs, PCBs, and metals; 2) historical site uses that may have contributed to the presence of SVOCs and metals in non-native historical fill; and 3) an unidentified on-site source that have been contributed to CVOC contamination in soil vapor.

Contaminant release and transport mechanisms include contaminated soil transported as dust (dermal, ingestion, inhalation), contaminated groundwater flow (dermal contact), and volatilization of contaminants from the soil and groundwater matrices to the soil vapor phase (inhalation).

Under current conditions, the likelihood of soil, groundwater, or soil vapor exposure to on-site and off-site humans is very limited, as the site is capped with impervious surface cover and no buildings are currently present on-site. Exposure to contaminants in soil, groundwater, and soil vapor via dermal contact, ingestion, or inhalation during site investigation would be minimized, as these activities will occur under a HASP. In addition, groundwater is not used as a potable water source and therefore no complete exposure pathway to groundwater exists.

2.5.2 Construction/Remediation Activities

During development and remediation, points of exposure will include disturbed and exposed non-native historical fill during excavation and dust and organic vapors generated during excavation. Potential routes of exposure will include ingestion and dermal absorption of non-native historical fill, inhalation of organic

vapors arising from contaminated soil, and inhalation of dust derived from non-native historical fill. The receptor population includes construction and remediation workers and, to a lesser extent, the public adjacent to the site.

The potential for completed exposure pathways is present since all five elements exist; however, the risk will be minimized by the implementation of appropriate health and safety measures, such as monitoring the air for organic vapors and dust, using vapor and dust suppression measures, cleaning truck undercarriages before they leave the site to prevent off-site soil tracking, maintaining site security, and having workers wearing the appropriate personal protective equipment (PPE).

Consistent with 6 NYCRR 375-1.6(a) and 375-1.8, remedial actions may be implemented and documented in discrete phases or areas of a site, provided that the completed portion is protective of public health and the environment. Accordingly, the project is anticipated to proceed with a phased Temporary Certificate of Occupancy (TCO) process at the conclusion of construction, whereby TCOs may be sought for individual buildings or portions thereof for which remedial action objectives have been achieved and required engineering and institutional controls have been fully implemented, as appropriate. Occupancy of such completed portions of the Site may proceed while remedial activities continue in other, unoccupied areas, subject to Department approval, submission of Change of Use (COU) notices, implementation of the Site Management Plan, and/or maintenance of appropriate physical separation and controls to provide continued protectiveness.

In accordance with a RAWP, which will include a Construction Health and Safety Plan (CHASP), a Soil/Fill Management Plan (SFMP), and a Community Air Monitoring Plan (CAMP), measures such as conducting an air-monitoring program, donning PPE, covering soil stockpiles, altering work sequencing, maintaining a secure construction entrance, proper housekeeping, and applying vapor and dust suppression measures to prevent off-site migration of contaminants during construction will be implemented to prevent completion of these potential exposure pathways to both on- and off-site receptor populations.

2.5.3 Proposed Future Conditions

After construction, residual contamination will likely remain on-site in soil, groundwater, and soil vapor within the Track 4 area. Institutional controls (IC) and engineering controls (EC) will be included as elements of the site remedy, including an engineered site-wide composite cover system, for the Track 4 area. These controls (absent NYSDEC approval) will be maintained in perpetuity under a Site Management Plan (SMP) and will preclude exposure to on- and off-site receptor populations. No ICs and ECs will be necessary for the Track 1/Track 2 area.

2.5.4 Human Health Exposure Assessment Conclusions

1. Under current conditions, there is a marginal risk for exposure. The primary exposure pathways are for dermal contact, ingestion and inhalation of soil, soil vapor, or groundwater by site investigation and remediation workers. The exposure risks will be avoided or minimized by following the appropriate health and safety measures outlined in the site-specific HASP during ground-intrusive activities.

2. In the absence of a HASP and CAMP, there is a moderate risk of exposure during construction and remediation. The primary exposure pathways will be:
 - a. Dermal contact, ingestion and inhalation of contaminated soil, groundwater, or soil vapor by construction workers.
 - b. Dermal contact, ingestion and inhalation of soil (airborne dust) and organic vapors by the community in the vicinity of the site.
3. These exposure risks can be avoided or minimized by performing community air monitoring and by following the appropriate health and safety, vapor and dust suppression, and site security measures outlined in a site-specific HASP. As needed, extracted groundwater from the remedial dewatering system will be pretreated and discharged off-site in accordance with appropriate permits.
4. The existence of a complete exposure pathway for site contaminants to human receptors during proposed future conditions is unlikely, as ECs and ICs will be implemented pursuant to the proposed remedy (Track 4 area only). Regional groundwater is not used as a potable water source in this part of New York City. The construction of ECs including a site cover system and/or any necessary vapor mitigation systems will mitigate the exposure pathway to contaminants in soil, groundwater, and/or soil vapor (Track 4 area only).
5. Regional groundwater is not used as a potable water in Kings County so there is no complete exposure to regional groundwater contaminants.
6. It is possible that complete exposure pathways exist for the migration of site contaminants to off-site human receptors for current, construction/remediation phase, or future conditions. Monitoring and control measures have been and will continue to be used during investigation and construction to prevent completion of this pathway. Under future conditions, the site will be remediated, and ECs and ICs will be implemented to prevent completion of this pathway (Track 4 area only).

2.6 Remedial Action Objectives

Based on the results of previous investigations and the RI, the following Remedial Action Objectives (RAO) were identified:

Track 1/Track 2 Remedy		
RAOs	RAOs for Public Health Protection	RAOs for Environmental Protection
Soil	<ul style="list-style-type: none"> • Prevent ingestion/direct contact with contaminated soil • Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil 	<ul style="list-style-type: none"> • Prevent migration of contaminants that will result in groundwater or surface water contamination

Track 1/Track 2 Remedy		
RAOs	RAOs for Public Health Protection	RAOs for Environmental Protection
Groundwater	<ul style="list-style-type: none">• Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards• Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater	<ul style="list-style-type: none">• Remove the sources of groundwater contamination to the extent practical through soil excavation
Soil Vapor	<ul style="list-style-type: none">• Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the site	

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Track 4 Remedy		
RAOs	RAOs for Public Health Protection	RAOs for Environmental Protection
Soil	<ul style="list-style-type: none">• Prevent ingestion/direct contact with contaminated soil• Prevent inhalation of or exposure from contaminants volatilizing from contaminants in soil	<ul style="list-style-type: none">• Prevent migration of contaminants that will result in groundwater or surface water contamination to the extent practical
Groundwater	<ul style="list-style-type: none">• Prevent ingestion of groundwater with contaminant levels exceeding drinking water standards• Prevent contact with, or inhalation of, volatiles emanating from contaminated groundwater	<ul style="list-style-type: none">• Remove the sources of groundwater contamination to the extent practical through soil excavation
Soil Vapor	<ul style="list-style-type: none">• Mitigate impacts to public health resulting from existing, or the potential for, soil vapor intrusion into buildings at the site	

3.0 DESCRIPTION OF REMEDIAL ACTION

This section presents an evaluation of the remedial alternatives: a Track 1 remedy is Alternative I and a split Track 1/Track 2 and Track 4 remedy is Alternative II. Both alternatives are expected to achieve the established RAOs.

This section is organized as follows:

- Sections 3.1 and 3.2 provide technical descriptions of:
 - Alternative I, a Track 1 remedy for the entire site
 - Alternative II, a split Track 1/Track 2 and Track 4 remedy
- Section 3.3 provides an evaluation of the Green Remediation Program
- Section 3.4 evaluates the remedial alternatives based on the BCP Remedy Selection Evaluation Criteria
- Section 3.5 summarizes the recommended remedial alternative

3.1 Alternative I – Technical Description

Alternative I, a Track 1 remedy, would include implementation of the following remedial elements necessary to achieve this remedial alternative:

- 1) Demolition and removal of subsurface obstructions (e.g., remnant foundation elements) and the surface pavements (asphalt and/or concrete) and management of the C&D debris in accordance with Part 360 and 361 regulations. Review and certification of C&D debris transport and disposal methodologies is not a requirement of the RE. The RE is responsible for documenting that C&D debris is not comingled with contaminated site soil and fill.
- 2) Development and implementation of a CHASP and CAMP for the protection of on-site workers, visitors, and the environment during remediation activities
- 3) Establish Track 1 site-specific SCOs that include NYSDEC Part 375-list UU SCOs
- 4) Completion of a waste characterization study for disposal or beneficial reuse of excavated soil/fill at off-site disposal or receiving facilities
- 5) Design and construction of a SOE system (soil mix column wall, sheet pile wall, and/or sloped excavation) necessary to facilitate remedial excavation
- 6) Design, installation and operation of a remedial dewatering system with an associated pre-treatment system to facilitate remedial excavation below the groundwater table -The dewatering system may require a Water Withdrawal Permit and would require a SPDES discharge permit to allow the discharge of the treated effluent to the East River.
- 7) Screening for indications of contamination source areas during any intrusive site work by visual, olfactory, and instrumental (PID) methods

- 8) Excavation, stockpiling, off-site transport, and disposal of all non-native historical fill and soil to achieve a Track 1 remedy in accordance with federal, state, and local rules and regulations for handling, transport, and disposal as follows:
 - a) Site-wide from surface grade to about 20 feet bgs, or about el. -10 -The excavation would be extended as necessary to meet UU SCOs.
- 9) If encountered, decommissioning and removal of USTs in accordance with 6 NYCRR Part 613.9 and NYSDEC DER-10 Section 5.5
- 10) Closure of the NYSDEC Spill No. 25-06379 reported on 15 October 2025
- 11) Collection and analysis of confirmation soil samples to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs at frequency of one sample per 900 square feet
- 12) Import of soil and fill for composite cover and backfill, where required, in compliance with: a) UU SCOs; b) 6 NYCRR Part 360 regulations; c) federal, state, and local rules and regulations for handling and transport of soil and fill; and d) Guidelines for Sampling and Analysis of PFAS Under NYSDEC's Part 375 Remedial Programs (April 2023) - Imported soil and fill are subject to approval by the NYSDEC project manager and may require sampling as listed in DER-10 Section 5.4.
- 13) Preparation and submission of a Final Engineering Report (FER) to NYSDEC following implementation of the Remedial Action defined in this RAWP (see Section 7.4)

The requirements for each of the Alternative I elements are described below.

3.1.1 On-Site Worker, Public Health and Environmental Protection

A site-specific CHASP would be implemented during excavation and foundation construction to protect on-site Langan workers from accidents and acute/chronic exposures to the identified contaminated media. Each contractor performing RAWP operations would be required to develop and enforce their own HASP that is consistent with Occupational Safety and Health Administration (OSHA) requirements and, at a minimum, meets the requirements of the CHASP in Appendix C. Public health would be protected by implementing and enforcing dust, odor, and organic vapor control and monitoring procedures included in the CAMP. The CAMP would include continuous perimeter monitoring of dust and organic vapor using DustTrak aerosol monitors and PID capable of recording data and calculating 15-minute averages. Field personnel would monitor perimeters for visible dust and odors. The environment would be protected by implementing and enforcing soil erosion prevention measures.

The CHASP is included in Appendix C. A site-specific CAMP was developed in accordance with the New York State Department of Health (NYSDOH) Generic CAMP and is included as Appendix D.

3.1.2 Monitoring Well Decommissioning

Existing permanent groundwater monitoring wells at the site would be properly decommissioned by a driller in accordance with NYSDEC Commissioner Policy (CP)-43 prior to excavation. The only exception to this is if the full length of the well is to be excavated during remediation and development. If required,

well decommissioning would be performed by an experienced driller and logged by the driller and Langan field personnel. The preferred decommissioning method would be to grout all monitoring wells in place with the standard grout mix prescribed in CP-43 via tremie. The outer protective casing “stick-up” would be removed after the wells have been properly filled with grout.

3.1.3 Demolition and Removal of Construction and Demolition Debris

C&D debris generated during the remedial excavation would be handled, transported and disposed of in accordance with federal, state, and city regulations (including 6 NYCRR Part 360 Series regulations). The RE is responsible for documenting that C&D debris is not commingled with contaminated site soil and fill.

3.1.4 Fill and Soil Removal

Remedial excavation would include removal of non-native historical fill and/or native soil exceeding the UU SCOs across the site. The estimated volume of non-native historical fill requiring removal and off-site disposal for a Track 1 cleanup is about 121,000 cubic yards. This estimate is based on the complete removal of non-native historical fill and/or native soil exceeding UU SCOs across the site. The estimated depth of excavation required to achieve a Track 1 is about 20 feet bgs, or about el. -10. The extent of the Track 1 remedial excavation is shown on Figure 7. An SOE system and a remedial dewatering system with a pre-treatment system would be designed, constructed, and operated (dewatering only) to facilitate Track 1 excavation depths. See Section 3.2.8 for more detail on dewatering.

3.1.5 Support of Excavation

An SOE system (e.g., secant pile, soil mix column, or sheet pile wall) would need to be constructed to accommodate removal of non-native historical fill and/or native soil required for the attainment of RAOs under a Track 1 cleanup and prevent the migration of off-site contamination on to the site. The estimated depth of excavation required to achieve a Track 1 is about 20 feet bgs, or about el. -10. A remedial dewatering system would be employed to maintain a water level at least two feet below working grade. See Section 3.1.8 for more details on dewatering. The SOE may also serve as a bulkhead along the site’s frontage with the East River to stabilize the shoreline. The Contractor would install excavation support and bracing to permit excavation to the requisite remedial depth.

3.1.6 Screening for Indications of Contamination

Visual, olfactory, and instrumental (PID) soil screening and assessment would be performed by field personnel under the direction of the RE during all remedial and development excavations into known or potentially contaminated non-native historical fill and/or native soil. Soil screening would be performed regardless of when the invasive work is done and would include all excavation and invasive work performed during the remedy.

Field screening would be performed by field personnel under the direct supervision of the RE or qualified environmental professional (QEP). Résumés would be provided for all personnel responsible for field screening (i.e., those representing the RE) of invasive work for known or unknown contaminant sources during remediation and development work.

3.1.7 UST Removal

No USTs were identified during the RI. However, any USTs, and/or associated appurtenances that are encountered during excavation would be decommissioned, disposed of off-site, and registered with the NYSDEC Petroleum Bulk Storage (PBS) unit. If encountered, petroleum-impacted soil in the unsaturated zone would be excavated for off-site disposal. Petroleum impacts below the groundwater table would be addressed through excavation, dewatering, and/or in-situ treatment. Excavated petroleum-impacted soil/fill would be stockpiled separately and disposed of off-site at a permitted disposal facility in accordance with applicable regulations.

3.1.8 Excavation Dewatering

Dewatering of groundwater would be required to facilitate the remedial excavation of soil exceeding UU SCOs and would also act as a method of groundwater treatment through source removal. Dewatering fluids would be pre-treated prior to being discharged to the East River in accordance with federal, state, and local laws. Alternatively, dewatering discharge could occur to the NYC sewer system with appropriate NYCDEP permitting. The dewatering system may require a Water Withdrawal Permit from the NYSDEC and would require a State Pollutant Discharge Elimination System (SPDES) discharge permit to allow the discharge of the treated effluent to the East River. The dewatering system would be designed, operated and maintained by the Contractor's New York State-licensed Professional Engineer (PE).

3.1.9 Confirmation Soil Sampling

Confirmation soil samples would be collected from the excavation base at a frequency of one per 900 square feet per NYSDEC DER-10. Sidewall samples would not be collected because the SOE system would preclude access to excavation sidewalls. An estimated 182 confirmation endpoint soil samples, plus QA/QC samples, would be collected to confirm remedial performance and would be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, herbicides, metals (including hexavalent and trivalent chromium), cyanide, PFAS, and 1,4-dioxane. Over-excavation may be required as necessary to remove soil that does not meet the UU SCOs. If over-excavation is completed, additional confirmation samples would be required.

3.1.10 Excavation Backfill

In areas that are excavated deeper than development grade for remedial purposes, the excavation areas would be backfilled to raise the site to development grade. Backfill would consist of soil/fill meeting the UU SCOs. Imported fill must be sourced from appropriately licensed facilities or borrow sources with no history of environmental contamination. If sampling of the proposed soil/fill is required, qualified environmental personnel would collect representative samples at a frequency consistent with DER-10. The samples would be analyzed for 6 NYCRR Part 375 VOCs, SVOCs, pesticides/herbicides, PCBs, metals, and emerging contaminants, including PFAS, and 1,4-dioxane, by a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory. Virgin crushed stone with less than 10% by weight passing through a No. 10 sieve would not require sampling prior to import.

An estimated 125,000 cubic yards of backfill would be required to raise the site to development grade upon completion of the Track 1 remediation.

3.2 Alternative II – Technical Description

A split Track1/Track 2 and Track 4 remedy is proposed and would include implementation of the following remedial elements necessary to achieve this remedial alternative:

- 1) Demolition and removal of subsurface obstructions (e.g., remnant foundation elements) and the surface pavements (asphalt and/or concrete) and management of the construction and demolition (C&D) debris in accordance with Part 360 and 361 regulations. Review of the proposed facility and certification of transport C&D debris transport and disposal methodologies is not a requirement of the RE. The RE is responsible for documenting that C&D debris is not commingled with contaminated site soil and fill
- 2) Development and implementation of a CHASP and CAMP for the protection of on-site workers, visitors, and the environment during remediation activities
- 3) Establishment of site-specific SCOs that include NYSDEC Part 375-list Restricted Use Restricted-Residential SCOs and relevant Protection of Groundwater (PGW) SCOs for Track 4 areas only
- 4) Completion of a waste characterization study to facilitate disposal or beneficial reuse of excavated soil/fill at off-site disposal or receiving facilities
- 5) Decommissioning existing permanent groundwater monitoring wells at the site in accordance with NYSDEC Commissioner Policy (CP)-43 - The preferred decommissioning method would be to grout all monitoring wells in place with the standard grout mix prescribed in CP-43 via tremie unless the full length of a monitoring well is removed during remedial excavation.
- 6) Design and construction of a support of excavation (SOE) system (soil mix column wall, sheet pile wall, and/or sloped excavation) necessary to undertake the remedial excavation in the Track 1/Track 2 and Track 4 areas
- 7) Design, installation and operation of a remedial dewatering system with an associated pre-treatment system necessary to allow remedial excavation below the groundwater table in the Track 1/Track 2 and Track 4 areas - The dewatering system may require a Water Withdrawal Permit and would require a State Pollutant Discharge Elimination System (SPDES) discharge permit to allow the discharge of the treated effluent to the East River in accordance with federal, state, and local laws.
- 8) Screening for indications of contamination source areas during any intrusive site work by visual, olfactory, and instrumental (PID) methods
- 9) Excavation, stockpiling, off-site transport and disposal of non-native historical fill and soil to achieve a Track 1/Track 2 remedy in accordance with federal, state, and local rules and regulations for handling, transport, and disposal as follows:

- Across the footprints of Building C2 and C3 from surface grade to about 15 feet bgs, or about el. -5. The excavation would be extended as necessary to meet UU SCOs.
 - If a Track 1 remedy is deemed infeasible, a Track 2 Restricted Use Residential remedy would be proposed in the footprints of Building C2 and C3.
- 10) Excavation, stockpiling, off-site transport and disposal of non-native historical fill and soil to achieve a Track 4 remedy for the remainder of the site in accordance with federal, state, and local rules and regulations for handling, transport, and disposal as follows:
- Across the waterfront access area to at least 2 feet bgs or about el. 0 to 7
 - In localized areas of the waterfront access area, the Connector Road, and Freeman Street to between about 2 and 12 feet bgs, or about el. 6 to -3
 - In localized areas of Building C1 to about 6 to 17 feet bgs, or about el. -7 to +3.5
 - Soil exceeding the following criteria would also be removed to the extent practical or otherwise managed in accordance with DER-10 to achieve a Track 4 cleanup:
 - i) Soil exceeding the 6 NYCRR Part 371 hazardous criteria, including the known localized hotspot with soil exhibiting characteristic hazardous concentrations of lead
 - ii) Soil exceeding the RURR SCOs and/or soil with evidence of petroleum or chemical-like impacts (visual, olfactory, and/or PID above background) encountered during other development-related excavation (cellar, pile caps, elevator pits and/or new utility corridors in the Connector Road and Freeman Street) or during the removal of any identified USTs
- 11) If encountered, decommissioning and removal of USTs in accordance with 6 NYCRR Part 613.9 and NYSDEC DER-10 Section 5.5
- 12) Administrative closure of the NYSDEC Spill No. 25-06379 reported on 15 October 2025
- 13) Collection and analysis of:
- Confirmation soil samples within the Track 1/Track 2 area to evaluate the performance of the remedy with respect to attainment of Track 1 SCOs at frequency of one sample per 900 square feet
 - Documentation soil samples in the Track 4 area to document remaining soil quality. Documentation soil samples would include post-excavation soil samples in excavation areas and pre-cap documentation soil samples in areas where there is no excavation and only placement of imported fill. Documentation soil samples would be collected from the excavation base at a frequency of one per 900 square feet within the footprint of Building C1, every 2,000 square feet in the waterfront access area and private amenity terrace, and every 1,500 square feet in other areas of the site including the Connector Road and Freeman Street

- 14) Demarcation of residual (existing) non-native historical fill or soil through a survey by a professional land surveyor licensed in the State of New York and placement a high-visibility demarcation barrier for visual reference outside of the footprints of Buildings C1, C2 and C3 across the entire Track 4 area including the waterfront access area, private amenity terrace, Connector Road and Freeman Street
- 15) Import of soil and fill for composite cover and backfill, where required, in compliance with: a) RURR SCOs or NYSDEC Part 375-6.8(b) Protection of Groundwater (PGW) SCOs, whichever is more stringent; b) 6 NYCRR Part 360 regulations; c) federal, state, and local rules and regulations for handling and transport of soil and fill; and d) Guidelines for Sampling and Analysis of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (April 2023) - Imported soil and fill are subject to approval by the NYSDEC project manager and may require sampling as listed in DER-10 Section 5.4
- 16) Design, construction, and operation of an active submembrane depressurization (SMD) system with an integrated continuous waterproofing membrane/vapor barrier below the foundation of Building C1 to mitigate soil vapor intrusion
- 17) Design and construction of a composite cover system to eliminate exposure pathways to remaining contaminated soil in the Track 4 areas of the site. The composite cover system would consist of the following components:
 - 12-to-20-inch-thick concrete foundation slab and its underlying aggregate subbase and 12-to-24-inch-thick foundation walls for Building C1;
 - Hardscaped walkways, sidewalks and roadways (Connector Road and Freeman Street) with surface concrete and/or an underlying concrete slab base of varying thickness; and/or
 - Landscaped areas with at least 2 feet of clean soil/fill that meets the lower of the RURR and PGW SCOs or virgin quarry stone
- 18) Completion of a post-construction soil vapor intrusion (SVI) evaluation related to the operation of the SMD system in Building C1
- 19) Preparation and submission of a Final Engineering Report (FER) to NYSDEC following implementation of the Remedial Action defined in this RAWP (see Section 7.4)
- 20) Recording of an Environmental Easement (EE) for the Track 4 area to memorialize the remedial action and the ICs to ensure that future owners of the site continue to maintain these controls as required
- 21) Preparation of an SMP that describes management of the ICs and ECs for the Track 4 area only. Implementation of the SMP following completion of the remedy would be stipulated by the EE.

The requirements for each of the Alternative II elements are described below.

3.2.1 On-Site Worker, Public Health and Environmental Protection

A site-specific CHASP would be enforced to protect on-site workers from accidents and acute and chronic exposures from the identified contaminated media. The site CHASP is included as Appendix C. Each contractor performing RAWP operations would have and enforce a HASP that, at a minimum, meets the CHASP criteria. Public health would be protected by implementing and enforcing dust, odor, and vapor control as specified in the CAMP. The CAMP includes continuous perimeter monitoring of dust and organic vapors as discussed in section 5.4.13, using DustTrak aerosol monitors and PIDs capable of recording data and calculating 15-minute averages. Field personnel, supervised by the RE, would monitor site perimeters for visible dust and odors. In addition, field personnel would be equipped with a handheld PID during excavation. The environment would be protected by implementing and enforcing the appropriate soil erosion prevention measures.

3.2.2 Monitoring Well Decommissioning

Existing permanent groundwater monitoring wells at the site would be properly decommissioned by a driller in accordance with NYSDEC Commissioner Policy (CP)-43 prior to excavation. The only exception to this is if the full length of the well is to be excavated during remediation and development. If required, well decommissioning would be performed by an experienced driller and logged by the driller and Langan field personnel. The preferred decommissioning method would be to grout all monitoring wells in place with the standard grout mix prescribed in CP-43 via tremie. The outer protective casing "stick-up" would be removed after the wells have been properly filled with grout.

3.2.3 Demolition and Removal of Construction and Demolition Debris

C&D debris generated during remediation would be handled, transported, and disposed of in accordance with federal, state, and city regulations (including 6 NYCRR Part 360 Series regulations). The RE is responsible for documenting that C&D debris is not commingled with contaminated site soil and fill.

3.2.4 Fill and Soil Removal

To achieve a split Track 1/Track 2 and Track 4 cleanup, remedial excavation would be conducted across the site to remove soil/fill exceeding UU, RUR, relevant PGW, and RURR SCOs, to remove a hazardous lead hotspot, to facilitate installation of ECs, and to allow for installation of foundation elements, elevator pits, and utilities.

Excavation across the footprints of Building C2 and C3 would extend to about 15 feet bgs (about el. -5) to achieve a Track 1/Track 2 remedy. If a Track 1 remedy is deemed infeasible, a Track 2 Restricted Use Residential (RUR) remedy would be proposed. Within the Track 1/Track 2 cleanup area, soil/fill with analytes exceeding the UU and RUR SCOs would be removed as part of remediation and development.

Excavation across the waterfront access area would be up to at least 2 feet bgs (or about el. 0 to 7). Excavation would also be completed in localized areas of the waterfront access area, the Connector Road,

and Freeman Street to between about 2 and 12 feet bgs (or about el. 6 to -3) and in localized areas of Building C1 to about 6 to 17 feet bgs (or about el. -7 to 3.5). These excavations serve to remove the upper two feet of non-native historical fill and to remove additional non-native historical fill/or exceeding the Track 4 site-specific SCOs.

Within the Track 4 cleanup area, soil/fill with analytes exceeding the RURR and the relevant PGW SCOs for contaminants identified above the SGVs in groundwater would be removed as part of remediation. If considered a source of contamination to groundwater or soil vapor, soil/fill with analytes exceeding the 6 NYCRR Part 371 hazardous criteria, including the known localized hotspot with soil exhibiting characteristic hazardous concentrations of lead and soil exceeding the RURR SCOs and/or with evidence of petroleum or chemical-like impacts (visual, olfactory, and/or PID above background) encountered during other development-related excavation or during the removal of any identified USTs would be excavated and disposed of off-site to the extent practical.

The estimated volume of soil/fill requiring removal and off-site disposal for a split Track 1/Track 2 and Track 4 cleanup is about 50,300 cubic yards. The extent of the split Track 1/Track 2 and Track 4 remedial excavation is shown on Figure 8.

3.2.5 Support of Excavation

An SOE system (i.e., a soil mix column, sheet pile wall, and/or sloped excavation) would be constructed to allow removal of soil/fill required for the attainment of RAOs under a split Track 1/Track 2 and Track 4 remedy.

To achieve a Track 1/Track 2 remedy, remedial excavation across the footprints of Buildings C2 and C3 would extend below the groundwater table to an estimated maximum depth of 15 feet bgs (about el. -5). The contractor would design and install a soil mix column wall or a sheet pile wall to excavate to the remedial depth and to prevent the migration of off-site contamination on to the site. A remedial dewatering system would be employed to maintain a water level at least two feet below working grade. See Section 3.2.8 for more detail on dewatering.

To achieve a Track 4 remedy, remedial excavation would extend at least 2 feet bgs (about el. 6 to 2) across the waterfront access areas and Building C1. The contractor would utilize sloping to facilitate excavation in Track 4 areas of the site. A soil mix column wall, sheet pile wall, and/or localized shoring/shielding SOE would also be constructed to allow other localized excavations to an estimated maximum depth of 17 feet bgs (about el. -7) for other development-related excavation (cellar, pile caps, elevator pits, and/or new utility corridors). These localized excavations for development-related purposes may be designated as remedial excavations if they result in the removal of soil exceeding the RURR and/or relevant PGW SCOs and/or soil with evidence of petroleum or chemical-like impacts (visual, olfactory, and/or PID above background).

3.2.6 Screening for Indications of Contamination

Visual, olfactory, and PID soil screening and assessment would be performed by field personnel under the direction of the RE during all remedial and development excavations into known or potentially contaminated soil/fill. Soil screening would be performed regardless of when the invasive work is done and would include all excavation and invasive work performed during the remedy.

Field screening would be performed by field personnel under the direct supervision of the RE or QEP. Résumés would be provided for all personnel responsible for field screening (i.e., those representing the RE) of invasive work for known or unknown contaminant sources during remediation and development work.

3.2.7 UST System Removal

No USTs were identified during the RI. However, any USTs, and/or associated appurtenances that are encountered during excavation would be decommissioned, disposed of off-site, and registered with the NYSDEC PBS unit. If encountered, petroleum-impacted soil in the unsaturated zone would be excavated for off-site disposal. Petroleum impacts below the groundwater table would be addressed through excavation, dewatering, and/or in-situ treatment. Excavated petroleum-impacted non-native historical fill would be stockpiled separately and disposed of off-site at a permitted disposal facility in accordance with applicable regulations.

3.2.8 Excavation Dewatering

Dewatering of groundwater would be required to accommodate excavation of soil exceeding UU SCOs in the Track 1/Track 2 area and deeper excavations in the Track 4 area. Dewatering fluids would be treated prior to being discharged to the East River in accordance with federal, state, and local laws. Alternatively, dewatering discharge could occur to the NYC sewer system with appropriate NYCDEP permitting. The remedial dewatering system may require a Water Withdrawal Permit from the NYSDEC and would require a SPDES discharge permit to allow the discharge of the treated effluent to the East River. The dewatering system would be designed, operated and maintained by the Contractor's New York State-licensed PE.

3.2.9 Confirmation Soil Sampling (Track 1/Track 2 Area)

Confirmation soil samples would be collected from the excavation base at a frequency of one per 900 square feet per NYSDEC DER-10. Sidewall samples would not be collected from within the Track 1/Track 2 area because the SOE system would preclude access to excavation sidewalls. An estimated 64 confirmation soil samples, plus QA/QC samples, would be collected to confirm remedial performance and would be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, herbicides, metals (including hexavalent and trivalent chromium), cyanide, PFAS, and 1,4-dioxane. Over-excavation may be required as necessary to remove soil that does not comply with the UU or RUR SCOs. If over-excavation is completed, additional confirmation samples would be required.

3.2.10 Documentation Soil Sampling (Track 4 Area)

Documentation soil samples would be collected from the excavation base at a frequency of one per 900 square feet within the footprint of Building C1, every 2,000 square feet in the waterfront access area and private amenity terrace, and every 1,500 square feet in other areas of the site including the Connector Road and Freeman Street. Sidewall samples would not be collected from within footprint of Building C1 or utility corridors because SOE measures (e.g., sloping, soil mix columns or sheet pile walls, or other shoring/shielding SOE) would preclude access to excavation sidewalls. Documentation soil samples would be collected in areas of the site where excavation is not proposed after removal of the existing surface cover system and prior to placement of the demarcation layer (where appropriate) and imported fill. The 0- to 2-foot sample interval from the 2022 RI borings would serve as a documentation endpoint sample for areas where the upper two feet of existing non-native historical fill or soil would not be disturbed during remedial and development-related excavation. If any of the RI 0- to 2-foot sample intervals are disturbed during construction, additional documentation endpoint soil samples will be collected. An estimated 71 new documentation endpoint soil samples, plus QA/QC samples, would be collected to document remaining contamination and would be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, herbicides, metals (including hexavalent and trivalent chromium), cyanide, PFAS, and 1,4-dioxane.

3.2.11 Demarcation

After the completion of soil removal and any other invasive remedial activities and prior to backfilling with reused site fill or imported clean fill, a land survey would be performed by a New York State licensed surveyor. The survey would define the top elevation (referenced to NAVD88) of residual (existing) non-native historical fill or soil across the Track 4 area every 25-feet on center. No survey would be performed within the footprint of Building C1. A physical demarcation layer, consisting of orange snow fencing, geotextile material or equivalent material would be placed on top of this survey surface outside of the footprints of Buildings C1, C2 and C3 across the Track 4 area including the waterfront access area, private amenity terrace, Connector Road and Freeman Street to provide a visual reference. This demarcation layer would constitute the top of the zone that requires adherence to special conditions for disturbance of potentially contaminated residual soils. The survey would measure the grade covered by the visual demarcation layer before the placement of cover soils, pavement and sub-soils, structures, or other materials.

3.2.12 Excavation Backfill

In areas that are excavated deeper than development grade for remedial purposes, the excavation areas would be backfilled to raise the site back to development grade. Backfill would consist of soil/fill meeting the RURR or PGW SCOs, whichever is more stringent. Imported fill must be sourced from appropriately licensed facilities or borrow sources with no history of environmental contamination. If sampling of the proposed soil/fill is required, qualified environmental personnel would collect representative samples at a frequency consistent with DER-10. The samples would be analyzed for 6 NYCRR Part 375 VOCs, SVOCs,

pesticides/herbicides, PCBs, metals, and emerging contaminants, including PFAS, and 1,4-dioxane, by a NYSDOH ELAP-certified laboratory. Virgin crushed stone or recycled concrete aggregate (RCA) with less than 10% by weight passing through a No. 10 sieve would not require sampling prior to import.

An estimated 26,000 cubic yards of fill would be required to raise the site to development grade upon completion of the split Track1/Track 2 and Track 4 remediation. About 70 cubic yards of fill would be required for backfill across the Track 1/Track areas and about 5,680 cubic yards of fill would be required for backfill across the Track 4 areas.

3.2.13 Installation of SMD System and Waterproofing Membrane/Vapor Barrier and SVI Evaluation

To mitigate SVI, an SMD system with an integrated continuous waterproofing membrane/vapor barrier or approved engineered alternative would be installed beneath the concrete foundation slab of Building C1. The SMD system would be designed as an active system and developed in general accordance with the NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2026). The SMD system would include a submembrane collection layer (8-inch layer of virgin $\frac{3}{4}$ -inch stone) with horizontal perforated collection piping. The collection layer would underlie a continuous waterproofing membrane/vapor barrier that is integrally bonded to the 12-to-20-inch thick concrete building foundation slab. The waterproofing/vapor barrier membranes would be resistant to petroleum-related and chlorinated VOCs and have a minimum thickness of 20 mils. Permanent vapor monitoring points would be installed in the slab to allow for future pressure field extension testing. Riser pipes would be installed to convey the collected vapor to the building roof. The riser pipes would be connected to one or more active vacuum fans.

Following installation of the SMD system and foundation slab and receipt of the COC, an SVI evaluation would be performed during the site management phase prior to building occupancy to evaluate any SVI risk for the new building and determine the operational status of the SMD system (active or passive). The SVI evaluation would include documentation of the installation of remediation and development construction measures (removal of non-native historical fill, dewatering, and installation of a composite cover system, a monolithic waterproofing membrane/vapor barrier, and an SMD system beneath building C1). Pressure field extension testing and confirmatory indoor air sampling would be conducted under a work plan approved by NYSDEC and NYSDOH, following the completion of remedial elements. The pressure field extension testing would document that the SMD system is depressurizing all parts of the building not tied into the water table. Additionally, indoor air analytical sampling would be conducted throughout the building to verify concentrations are below applicable guidance. This sampling would be completed after the building envelope is complete, no sooner than 30 days after startup and continuous operation of the SMD system, and when all air handling/heating, ventilation, air conditioning systems are in operation. The SVI evaluation would be performed during the heating season and once the heating, ventilation, and air conditioning (HVAC) systems are in place and in operation. Following the SVI evaluation and receiving concurrence from the NYSDEC and NYSDOH, the SMD system would be completed as either an active or passive SMD system and once commissioned would act as a permanent

EC, regulated and maintained in accordance with the SMP. The extent of the area to be depressurized is shown on Figure 11.

Record drawings and specifications of the SMD system would be presented in the FER. The SMP would include the necessary drawings and specifications to commission the SMD system and provisions for system operation and indoor air monitoring. The SMP would also describe procedures to be followed if the SMD system is disturbed after its installation is complete. Maintenance of the SMD system would be described in the SMP. SMD system design drawings signed and sealed by a PE licensed in the State of New York would be provided to the NYSDEC and NYSDOH for record prior to construction after they are submitted to and approved by the New York City Department of Buildings (NYCDOB). Completion and commissioning of the SMD system is expected to occur during the site management phase of the project and would be completed before the building is occupied.

3.2.14 Composite Cover System

The Track 4 area would include an engineered cover system as an EC. The composite cover system would consist of the following components:

- 12-to-20-inch thick concrete foundation slab and its underlying aggregate subbase and 12-to-24-inch thick foundation walls for Building C1;
- Hardscaped walkways, sidewalks and roadways (Connector Road and Freeman Street) with surface concrete and/or an underlying concrete slab base of varying thickness; and/or
- Landscaped areas with at least 2 feet of clean soil/fill that meets the lower of the RURR and PGW SCOs or virgin quarry stone

A demarcation layer would be placed below the composite cover system outside of the building C1 footprint.

The new buildings constructed in the Track 1/Track 2 area would include concrete building slabs.

3.2.15 Site Management Plan and Environmental Easement

An EE for the Track 4 area would be recorded referencing ICs that are part of the selected remedy, which would be binding upon all subsequent owners and occupants of the property. The ICs would: 1) restrict the site use to residential uses, although land use is subject to local zoning laws; 2) restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDEC or NYSDOH; 3) require the completion and submission to the NYSDEC of periodic certifications of ICs in accordance with Part 375; and 4) include notice-of-use restrictions of the site soil. The SMP would identify all use restrictions and long-term monitoring and maintenance requirements to ensure the ICs and ECs remain in place and are effective.

3.3 Green Remediation Program

The green and sustainable remediation (GSR) components that would be considered for each remedial alternative are as follows:

- The environmental impacts of treatment technologies and remedy stewardship over the long term
- Reducing direct and indirect greenhouse gases (GHG) and other emissions
- Increasing energy efficiency and minimizing use of non-renewable energy
- Conserving and efficiently managing resources and materials
- Reducing waste, increasing recycling, and increasing reuse of materials that would otherwise be considered a waste
- Maximizing habitat value and creating habitat when possible
- Fostering green and healthy communities and working landscapes which balance ecological, economic, and social goals
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development with respect to the remedy
- Incorporating the GSR principles and techniques to the extent feasible in the future development at this site (i.e., future on-site buildings shall be constructed, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York [or most recent edition] to improve energy efficiency as an element of construction)

To evaluate the remedy with respect to GSR principles as part of the remedial program, a best management practices (BMP) assessment was conducted in accordance with the ASTM Guide for Standard Cleanups, and an environmental footprint analysis was conducted for each remedial alternative using SiteWise. The results of the environmental footprint analysis are provided in Appendix F.

BMPs for the project related to these GSR metrics, and BMPs for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, would be incorporated into the remedial program, as appropriate. The project design specifications would include detailed requirements, including implementation of the BMPs described in Section 4.1.2. A BMP assessment and an environmental footprint analysis would also be conducted at the completion of the remedy. As practicable, water consumption, GHG emissions, renewable and non-renewable energy use, waste reduction, and material use would be estimated at the end of the remediation phase. Progress with respect to GSR metrics would be tracked during implementation of the remedial action and reported in the FER.

A climate screening was conducted for the site and concluded that the site is vulnerable to severe storms, flooding, and sea level rise on account of its location next to a tidal estuary; however, the proposed

redevelopment would reduce these vulnerabilities and mitigate the effects of climate change at the site. The climate screening checklist is provided in Appendix E.

3.4 Evaluation of Remedial Alternatives

The following is an evaluation of the remedial alternatives based on the NYSDEC BCP remedy evaluation criteria listed below. The first two criteria are considered “threshold criteria” and the remaining criteria are “balancing criteria”. A remedial alternative must meet the threshold criteria to be considered and evaluated further under the balancing criteria.

- A. Protection of human health and the environment
- B. Compliance with Standards, Criteria, and Guidelines (SCG)
- C. Short-term effectiveness and impacts
- D. Long-term effectiveness and permanence
- E. Reduction of toxicity, mobility, or volume of contaminated material
- F. Implementability
- G. Cost effectiveness
- H. Community acceptance
- I. Green and sustainable remediation (including climate resiliency)
- J. Land use

3.4.1 Protection of Public Health and the Environment

Alternative I – The Track 1 remedy would completely mitigate the potential for complete exposure pathways through the complete removal of all known on-site contaminated media. Remediating the site to Track 1 standards would result in the removal of soil exceeding Track 1 SCOs. Groundwater contamination would also be remediated through dewatering. It is anticipated that soil vapor would be remediated through the removal of contaminated soil and groundwater source areas. The RAOs for public health and environmental protection would be met through the complete removal of contaminated soil and remediation of groundwater, which would eliminate any possibility for ingestion and inhalation of, or dermal contact with contaminated soil groundwater and/or soil vapor.

Alternative II – Under Alternative II, future exposure would be limited by the establishment of an EE, governed by an SMP, for the Track 4 area. The RAOs for public health and environmental protection would be met through a combination of removal of contaminated media, ECs, and ICs (including an EE and SMP). In Track 1/Track 2 areas, site soil that exceeding UU SCOs or RUR SCOs would be removed; this action would address any groundwater contamination and soil vapor contamination as well. In the Track 4 areas, site soil exceeding the Track 4 site-specific SCOs would be removed as prescribed in this RAWP and the

remedy would mitigate exposure pathways to on-site contaminated media through installation of ECs and enforcement of ICs. A composite cover system would preclude direct contact with and ingestion and inhalation of contaminated soil particles. Potential exposure pathways from soil vapor would be mitigated by installing and operating an SMD system underneath a waterproofing/vapor barrier membrane beneath Building C1.

Public health would be protected during remediation under all remedial alternatives by implementing and enforcing dust, odor, and organic vapor control and mitigation procedures when needed. The environment would be protected by implementing and enforcing the Stormwater Pollution Prevention Plan (SWPPP).

3.4.2 Compliance with Standards, Criteria, and Guidance

Alternative I – Remediating the site to Track 1 UU standards would demonstrate compliance with all applicable SCGs through the removal of contaminated non-native historical fill and soil and dewatering.

Alternative II – The split Track1/Track 2 and Track 4 remedy includes removal of soil exceeding the UU SCOs (or RUR SCOs) in the Track 1/Track 2 and soil exceeding the Track 4 site-specific SCOs in the Track 4 area. Within the Track 4 areas, ECs would be constructed to prevent contact with any remaining contaminated non-native historical fill and soil containing compounds exceeding the RURR and relevant PGW SCOs. Soil vapor would be mitigated by installing and operating an SMD system or approved alternative underneath a waterproofing/vapor barrier membrane beneath Building C1. The foundations of Buildings C2 and C3 would also be constructed below the groundwater table with a waterproofing membrane/vapor barrier; these actions would also render the potential exposure pathway to any residual soil vapor contamination incomplete. Alternative II complies with the SCGs.

All remedial alternatives would comply with SCGs that involve protection of the public health and environment during the remedial action by implementing and enforcing a site-specific CHASP. OSHA requirements for on-site construction safety would be followed by the site contractors. Both Alternatives would comply with the GSR requirements in DER-31.

3.4.3 Short-Term Effectiveness and Impacts

All Alternatives – Short-term adverse impacts from migration of contaminants carried in dewatering fluid, soil, vapor, and dust to the community, site workers and the environment would be minimized by implementing appropriate control plans (including the CHASP, CAMP, SFMP, and dust, odor, and vapor control measures). Additional short-term adverse impacts include increased noise, potential obstructions on roadways, and pedestrian traffic associated with construction.

Both alternatives would require 20-cubic-yard capacity truck trips to haul excavated fill required for the baseline remediation program. A Track 1 remedy would require about 6,040 truck trips and a split Track1/Track 2 and Track 4 remedy would require about 2,730 truck trips. Truck traffic under both remedies would be routed on the most direct course by the contractor using major thoroughfares where

possible and flaggers would be used to protect pedestrians at site entrances and exits. Off-site queuing of tracks would be minimized, and truck idling is subject to NYC law.

3.4.4 Long-Term Effectiveness and Impacts

Alternative I – The Track 1/Track 2 remedy would remove all soil exceeding UU SCOs from the site and remediate impacted groundwater through the dewatering system. Because an EE and SMP are not required as part of the Track 1 remedy (or Track 2 Residential remedy), Article 141 of the NYSDOH code would be relied upon to prevent ingestion of groundwater, which prohibits potable use of groundwater without prior approval. Future site use would be unrestricted; therefore, the long-term effectiveness of this remedy would eliminate potential environmental exposure and satisfy the objectives of this criterion.

Alternative II – Under a split Track1/Track 2 and Track 4 remedy, all soil exceeding the UU SCOs (or RUR SCOs) would be removed in the Track 1/Track 2 areas down to at least 15 feet bgs (about el. -5) and soil exceeding the Track 4 site-specific SCOs would be removed in the Track 4 area as prescribed in this RAWP. In addition, in the Track 4 area, ECs would be constructed to prevent contact with remaining soil contamination exceeding RURR and relevant PGW SCOs. Contaminated groundwater would be treated through remedial dewatering in the Track 1/Track 2 area and in the Track 4 area to limited extent. Soil vapor intrusion is not a concern for the Track 1/Track 2 area given the depth of excavation and removal of non-native historical fill. An SMD system would also be constructed and operated underneath Building C1 within the Track 4 area. An SMP and EE would also restrict the use of groundwater on the site at the Track 4 area. Long-term effectiveness and permanence of this alternative would be achieved through the implementation of the SMP and through enforcement of an EE, which would require annual inspections and reporting in perpetuity. The long-term effectiveness of the split Track1/Track 2 and Track 4 remedy would mitigate potential exposure to site contaminants and satisfy the objectives of this criterion.

3.4.5 Reduction of Toxicity, Mobility, or Volume of Contaminated Material

Alternative I – The Track 1 remedy would permanently and completely reduce the toxicity, mobility, and volume of known contamination through excavation and removal of all on-site non-native historical fill and soil exceeding the UU SCOs. Extensive removal of non-native historical fill and groundwater from the site under a Track 1 remedy is expected to significantly reduce soil vapor contamination. Therefore, Alternative I provides the greatest reduction of the toxicity, mobility, and volume of contaminated non-native historical fill and soil.

Alternative II – The split Track1/Track 2 and Track 4 remedy would also reduce the toxicity, mobility, and volume of soil contamination across the site through the excavation of soil exceeding UU SCOs down to at least 15 feet bgs (about el. -5) in the Track 1/Track 2 area and soil exceeding the Track 4 site-specific SCOs would be removed in the Track 4 area as prescribed in this RAWP. In addition, in the Track 4 area, ECs would be constructed to prevent contact with remaining soil contamination exceeding RURR and relevant PGW SCOs. The dewatering and pre-treatment required by this remedy is also expected to remove SVOCs, metals, and PFAS in groundwater above SGVs in select areas of the site. The removal of

contaminated soil and groundwater from the site under the split Track1/Track 2 and Track 4 remedy is expected to improve overall soil vapor conditions at the site.

3.4.6 Implementability

Alternative I – Implementing the Track 1 remedy is feasible; however, it is more technically challenging to design and achieve because of the significant increase in excavation depth and backfill volume required for the Track 1 remedial excavation, and the substantial increase in dewatering volumes and SOE system materials to reach the excavation depths in source areas. Dewatering wells would have to extend 5 feet deeper to pump 11,280,000 more gallons of groundwater, a more extensive SOE system would be required to allow for deeper excavation to about 20 feet below the current ground surface, and would take about 21 months longer to implement. Because of these technical challenges, the duration of a Track 1 remedy would be much greater and would be far more challenging to implement than a split Track1/Track 2 and Track 4 remedy.

Alternative II – Implementing the split Track1/Track 2 and Track 4 remedy is feasible and more easily implementable because the depth of remedial excavation across the site is shallower than a site-wide Track 1 excavation, especially in the Track 4 area. The duration of the split track remedy is also shorter and would require less excavation support and dewatering. For these reasons, the split Track1/Track 2 and Track 4 remedy is easier to implement than the Track 1 remedy.

3.4.7 Cost Effectiveness

The estimated remediation cost of each cleanup track is as follows:

- Track 1 remedy: about \$56.6 million
- Split Track1/Track 2 and Track 4 remedy: about \$26.1 million

Table 4 (Track 1) and Table 5 (Track1/Track 2 and Track 4) detail the estimated costs needed to achieve each remedy.

Based on the assumptions detailed for Alternative I, including much greater depth of excavation, support, dewatering, and removal of soil/fill exceeding UU SCOs, the estimated remediation cost of a Track 1 cleanup is about \$56.6 million. As the site would be remediated to an unrestricted use level, there would not be any long-term operations, maintenance, or monitoring costs associated with the proposed remedy.

Based on the assumptions detailed for Alternative II, the removal of soil exceeding UU SCOs (or RUR SCOs) in the Track 1/Track 2 area and soil exceeding the Track 4 site-specific SCOs in the Track 4 area, dewatering, and implementation of ICs and ECs in the Track 4 area, the estimated remediation cost of a split Track1/Track 2 and Track 4 cleanup is about \$26.1 million. In this scenario, an SMP would be required to maintain the implementation of ECs and ICs in the long-term in completion of the remedy. Alternative II is the most cost-effective alternative for achieving the RAOs.

3.4.8 Community Acceptance

Both alternatives should be acceptable to the community in terms of remediation because the potential complete exposure pathways would be eliminated through source removal and/or mitigated upon completion of the remedial actions. The Track 1 remedy may be less acceptable to the community because of the increased short-term impacts and remediation duration associated with complete removal contaminated non-native historical fill and soil above Track 1 SCOs. The split Track1/Track 2 and Track 4 remedy may be more acceptable to the community because of decreased short-term impacts and remediation duration and achieve the RAOs through removal of contaminated non-native historical fill and soil and the use of ECs and/or ICs.

The selected remedy would be subject to a 45-day public comment period. Any substantive public comments received would be addressed before the remedy is approved.

3.4.9 Green and Sustainable Remediation (including Climate Resiliency)

To assess potential remedial alternatives with respect to GSR principles, an environmental footprint analysis was conducted for each remedial alternative using SiteWise. The environmental footprint analyses assess the environmental footprint at each stage of remediation (site preparation, excavation, and restoration). The following metrics were quantified:

1. GHG Emissions
2. Total Energy Use
3. Water Consumption
4. Electrical Usage
5. Total Nitrogen Oxides (NO_x) Emissions
6. Total Sulphur Oxides (SO_x) Emissions
7. Total Particulate Matter Emissions (specifically particulate matter less than 10 microns in diameter [PM10])

Alternative I would produce more NO_x, SO_x, and PM10 emissions than Alternative II. Alternative I would also use more water and total energy than Alternative II. Alternative I would achieve the UU SCOs and remediate all on-site contamination, while Alternative II would achieve the UU SCOs (or RUR SCOs) in the Track 1/Track 2 area and leave soil contamination exceeding Track 4 site-specific SCOs place in the Track 4 areas below a composite cover system.

The Track 1 remedy (Alternative I) would provide a greater level of effectiveness in protecting public health and the environment as no contamination would remain in place following remediation; however, a Track 1 remedy would impart a higher environmental footprint to achieve. Alternative II would still protect public health and the environment but would result in lower NO_x and PM10 emissions. BMPs would be implemented to reduce the overall footprint of the project under both alternatives.

Environmental footprint summaries for each alternative are provided in Appendix F. GSR measures would be implemented per DER-31 under both alternatives.

3.4.10 Land Use

The current, intended, and reasonably anticipated future land use of the site and its surroundings are compatible with both remedial remedies. The proposed development consists of three new residential buildings with full and/or partial cellar levels. The proposed development is consistent with zoning and land use in the area.

3.5 Summary of the Proposed Remedy

The split Track 1/Track 2 and Track 4 (Alternative II) remedy achieves the RAOs established for the project and is effective in the short- and long-term. The recommended remedy effectively reduces the mobility, toxicity, and volume of contaminants. No ECs or ICs will be required for the Track 1/Track 2 area. Soil vapor intrusion will be mitigated at Building C1 through the construction and operation of a SMD system, or approved alternative, underlying a waterproofing/vapor barrier membrane. Other ECs and ICs, including a composite cover system, SMP, and EE, will be implemented to render the Track 4 area protective of human health and the environment in the future based on the known impacts.

The recommended remedy is considered feasible and cost effective because the excavation depths do not present significant technical challenges (e.g., depth of excavation, support and dewatering and pre-treatment) and can be achieved through conventional construction measures. This remedial approach requires less heavy machinery and limits the number of trucks required for off-site disposal of contaminated material or import of backfill; thereby, resulting in less fuel consumption, fewer GHG and particulate emissions, and overall impacts to the local community. This approach will also shorten the overall duration of the remediation project and result in a corresponding reduction in waste generation, energy use, emissions, and water use.

Alternative II can be feasibly and practically implemented, while providing protection to human health and the environment, and should be acceptable to the community because it eliminates or mitigates complete exposure pathways. Alternative II is the recommended remedial alternative for this site.

4.0 REMEDIAL ACTION PROGRAM

4.1 Governing Documents

The primary documents governing the remedial action are summarized in this section. Where referenced, copies of the full plans are provided in the appendices.

4.1.1 Standards, Criteria and Guidance

In accordance with Environmental Conservation Law (ECL) § 15-3109 and DER-10, the objectives of the remedial action are to reduce the concentrations of contaminants of concern at the site to meet those levels that will protect public health and the environment. The following SCGs are typically applicable to Remedial Action projects in NYS, and will be consulted and adhered to as applicable:

- 29 CFR Part 1910.120 – Hazardous Waste Operations and Emergency Response
- 6 NYCRR Part 750 – SPDES Permits
- 6 NYCRR Part 364 – NYS Waste Transporter Permits
- 6 NYCRR Part 360 – NYS Solid Waste Management Requirements
- 6 NYCRR Part 371 – Identification and Listing of Hazardous Wastes
- 6 NYCRR Part 372 – Hazardous Waste Manifest System and Related Standards for Generators, Transporters and Facilities
- 6 NYCRR Subpart 373-4 – Facility Standards for the Collection of Household Hazardous Waste and Hazardous Waste from Conditionally Exempt Small Quantity Generators
- 6 NYCRR Subpart 374-1 – Standards for the Management of Specific Hazardous Wastes and Specific Types of Hazardous Waste Management Facilities
- 6 NYCRR Subpart 374-3 – Standards for Universal Waste
- 6 NYCRR Part 375 – Environmental Remediation Programs
- 6 NYCRR Part 376 – Land Disposal Restrictions
- CP-43 – CP on Groundwater Monitoring Well Decommissioning (December 2009)
- CP-51 – Soil Cleanup Guidance (2010)
- DER-10 – Technical Guidance for Site Investigation and Remediation (3 May 2010)
- DER-13 – Strategy for Evaluating Soil Vapor Intrusion at Remedial Sites in New York (2006)
- DER-23 – Citizen Participation Handbook for Remedial Programs (March 2010)
- DER-31 – Green Remediation (August 2020, revised January 2011)
- DER-32 – Brownfield Cleanup Program Applications and Agreements (2017)
- DER-33 – Guide to Drafting and Recording Institutional Controls (2010)
- Guidelines for Sampling and Analysis of PFAS Under NYSDEC’s Part 375 Remedial Programs (April 2023)

- NYSDOH Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006, with updates)
- NYSDOH Generic Community Air Monitoring Plan
- Screening and Assessment of Contaminated Sediment (Division of Fish, Wildlife and Marine Resources, June 2014)
- TOGS 1.1.1 – Ambient Water Quality Standards & Guidance Values and Groundwater Effluent Limitations
- USEPA OSWER Directive 9200.4-17 – Use of Monitored Natural Attenuation at Superfund, RCRA Corrective Action, and Underground Storage Tank Sites (December 1997)

4.1.2 Green Remediation Principals and Best Management Practices

The NYSDEC DER-31 Green Remediation Policy requires that green remediation concepts and techniques be considered during all stages of the remedial program, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology.

Green remediation principles and techniques will be implemented to the extent feasible in the remediation phase of the remedy per DER-31. The green remediation components that will be evaluated are as follows:

- Waste Generation
- Energy Usage
- Emissions
- Water Usage
- Land and/or Ecosystems

The remedy will include the implementation of several BMPs related to these green remediation components. The BMPs are outlined below.

Waste Generation

Waste generation considers the management of waste associated with remedial activities and any waste reduction projects including, but not limited to, material reuse and recycling. Several waste streams will be generated during implementation of the remedy (e.g., dewatering fluids, soil, polyethylene sheets used for stockpile coverage and separating types of contamination, nitrile gloves for endpoint sampling, disposable sample supplies, acetate liners from drilling operations, decontamination materials). When possible, an effort will be made to minimize consumption/generation of such materials. If possible, decontamination and reuse of applicable materials will be considered. Electronic methods of data collection (e.g., tablets) will also be used to reduce paper consumption when possible.

Electrical Energy Use

Energy usage considers the electricity usage needed for remediation activities. Energy will be required for charging equipment (e.g., PIDs, air monitoring). Battery-powered equipment will be turned off when not in use to limit charging activities.

Emissions

Emissions tracking considers fuel usage for transportation of personnel to and from the site, trucks used for export of contaminated material or import of backfill material, equipment and laboratory sample couriers, and construction equipment.

To reduce fuel usage, trucks and heavy machinery operators will be encouraged to reduce idling time and shut down vehicles or equipment when not in use. Ultra-low sulfur diesel (ULSD) fuel and the best available technology for reducing emissions will be used for construction vehicles. The Contractor will also be encouraged to perform routine, on-time maintenance such as oil changes to improve fuel efficiency.

When possible, personnel will be encouraged to take public transport and equipment/sample deliveries and pickups will be consolidated to reduce transport needs.

Water Usage

Water usage considers sources of water for tasks such as decontamination, irrigation, etc. The public water supply will be used when water is required for decontamination activities or dust suppression. This will be required for effective implementation of the remedy and the protection of human health. Water will only be consumed when necessary, and consumption will be in accordance with local regulations.

Land and/or Ecosystems

Land and/or ecosystems consider any disturbances and restoration of land and/or ecosystems as part of the implementation/operation of the remedy. During implementation of the proposed remedy, the site cover will be restored to an impervious condition. No ecosystems will be disturbed during construction.

Climate Change Impacts

The potential exists for an increase in stormwater runoff with time because of an increase in extreme storm events resulting from climate change. In the near-term during construction, a site-specific SWPPP, discussed in Section 5.4.10, will be followed and enhanced measures will be taken before, during and after extreme weather events as discussed in Section 5.4.11.1. In the long term, the redevelopment of the site will include improved stormwater drainage, which will help minimize loads on the municipal sewer. A climate screening checklist is provided in Appendix E.

Reporting

The FER will include a discussion of the green remediation practices/technologies employed throughout the remedial program. A footprint analysis using a NYSDEC DER-accepted model, and any tracking methods used through the construction including restoration activities will be included. Before approval

of an FER and issuance of a COC, all project reports will be submitted in digital form on electronic media (PDF).

4.1.3 Site-Specific Construction Health & Safety Plan

The RE prepared a site-specific CHASP (Appendix C). The CHASP will apply to all remedial and construction-related work on site. The CHASP provides a mechanism for establishing a site safety office, on-site safe working conditions, safety organization, procedures, and PPE requirements. The CHASP meets the requirements of 29 CFR 1910 and 29 CFR 1926 (which includes 29 CFR 1910.120 and 29 CFR 1926.65). The CHASP includes, but is not limited to, the following components:

- Summary of work tasks
- Organization and identification of key personnel
- Task/operation safety and health risk analyses
- Training requirements
- Medical surveillance requirements
- Personal protective equipment
- Air quality monitoring and action levels
- Work zones and decontamination
- Nearest medical assistance
- Standing orders and safe work practices
- Site security
- Underground utilities
- Site safety inspection
- Hand and power tools
- Emergency response
- Special conditions
- Recordkeeping
- Confined space entry
- CHASP acknowledgement form

Remedial work performed under this plan will be in full compliance with governmental requirements, including site and worker safety requirements mandated by OSHA.

The Participants and associated parties preparing the remedial documents submitted to the State and those performing the construction work are responsible for the preparation of an appropriate CHASP and for the appropriate performance of work according to the CHASP and applicable laws. All contractors

performing work on the site must prepare their own CHASP that, at a minimum, meets the requirements of the CHASP in Appendix C.

The CHASP and requirements defined in this RAWP pertain to all remedial and invasive work performed at the site until the issuance of a COC. Confined space entry will comply with all OSHA requirements to address the potential exposure posed by combustible and toxic gases.

4.1.4 Quality Assurance Project Plan

The RE prepared a Quality Assurance Project Plan (QAPP) that describes the quality control components employed so that the proposed remedy accomplishes the remedial goals, RAOs, and is completed in accordance with the design specifications. The QAPP is provided as Appendix G and includes:

- Responsibilities of key personnel and their organizations for the proposed remedy
- Qualifications of the quality assurance officer
- Sampling requirements including methodologies, quantity, volume, locations, frequency, and acceptance and rejection criteria
- Description of the reporting requirements for quality assurance activities including weekly quality assurance review reports, periodic quality assurance and quality control audits, and other report and data submissions

4.1.5 Soil/Fill Management Plan

The RE prepared a SFMP that includes detailed plans for managing soil/fill that is disturbed at the site, including excavation, handling, storage, transport and disposal. It also includes controls that will be applied to these efforts to facilitate effective, nuisance-free performance in compliance with applicable federal, state and local laws and regulations (see Section 5.4).

4.1.6 Stormwater Pollution Prevention Plan

Because this project involves soil disturbance of more than 20,000 square feet and is within the municipal boundaries of the City of New York (NYC), a SWPPP will be required. A SWPPP will be prepared during the project design process and submitted to NYSDEC when completed. Erosion and sediment controls for the site will be designed in conformance with requirements presented in the NYS Standards and Specifications for Erosion and Sediment Control. BMPs will be employed to mitigate erosion and prevent the migration of sediment off-site throughout construction. The remedial dewatering system may require a Water Withdrawal Permit from the NYSDEC and will require a State Pollutant Discharge Elimination System (SPDES) discharge permit to allow the discharge of the treated effluent to the East River.

Components of the SWPPP are further described in Section 5.4.10.

4.1.7 Community Air Monitoring Plan

A site-specific CAMP was developed in accordance with the NYSDOH Generic CAMP included as Appendix D. Community air monitoring will be conducted as outlined in Section 5.4.13.

4.1.8 Contractors Site Operations Plan

The RE will review plans and submittals for this remediation project (including those listed above as well as submittals from the contractor and subcontractors) and document their compliance with this RAWP. The RE is responsible for documenting that contractor and subcontractor document submittals are in compliance with this RAWP. Remedial documents will be submitted to NYSDEC and NYSDOH in a timely manner and before the start of work.

4.1.9 Citizen Participation Plan

A certification of mailing will be sent by the Participants to the NYSDEC project manager following the distribution of Fact Sheets and notices that includes: (1) certification that the Fact Sheets were mailed, (2) the date they were mailed; (3) a copy of the Fact Sheet; (4) a list of recipients (contact list); and (5) a statement that the repository was inspected on (specific date) and that it contained all of the applicable project documents.

No changes will be made to the approved Fact Sheets authorized for release by NYSDEC without written consent from NYSDEC. No other information, such as brochures and flyers, will be included with the Fact Sheet mailing.

The approved Citizen Participation Plan (CPP) for this project will be filed with the document repositories.

Document repositories were established at the following locations, as proposed in the BCP Application, and will contain all applicable project documents:

Brooklyn Public Library – Greenpoint Library

Acacia Thompson, Environmental Justice Coordinator
107 Norman Avenue at Leonard Street
Brooklyn, NY 11222
718-389-4394

Brooklyn Community Board 1

Dealice Fuller, Chairperson
435 Graham Avenue
Brooklyn, NY 11211
718-389-0009

In addition, an electronic repository can be accessed via DECIInfo Locator at the following link:
<https://extapps.dec.ny.gov/data/DecDocs/C224435/>

4.2 General Remedial Construction Information

4.2.1 Project Organization

This section presents the anticipated project organization and associated roles, including key personnel, descriptions of duties and lines of authority in the management of the RAWP. Information regarding the organization/personnel and their associated responsibilities is provided below.

Role	Contact
Remedial Engineer (RE):	Jason Hayes, PE
Project Manager:	Gregory C. Wyka, PG
Langan Health & Safety Officer:	Tony Moffa Jr., CHMM
Site Safety Coordinator:	William Bohrer, PG
Quality Assurance Officer:	Mimi Raygorodetsky
Field Team Leader:	Seyena Simpson, GIT

Project personnel résumés are included as Appendix G.

The RE will directly supervise field personnel that will be on-site during the remedial action to monitor particulates and organic vapor in accordance with the CAMP. Daily reports will be submitted to NYSDEC and NYSDOH and will include reporting of CAMP results that exceed the specified action levels (if any).

The RE will directly supervise field personnel that will interact daily with the construction manager and contractors to discuss the plans for that day and schedule upcoming activities. The field personnel will document remedial activities in the field book and daily reports.

The RE will directly supervise field personnel that will screen the excavation with a PID during intrusive activities and record records in the field book. Elevated readings will be reported to NYSDEC and NYSDOH in the daily reports. The field personnel will collect confirmation and documentation soil samples in accordance with this RAWP.

A photo log will be kept to document construction activities by still photos. The photo log may also be used to record activities recorded in the daily report.

The project field notebook will be used to document all sampling activities and how they correspond to the RAWP. All observations and field and laboratory tests will be recorded in the project field notebook or on separate logs. Recorded field observations may take the form of notes, charts, sketches, or photographs.

The Field Team Leader will maintain the current field book and original field paperwork during the performance of work. The Project Manager will maintain the field paperwork after completion and will maintain submittal document files.

4.2.2 Remedial Engineer

The RE for this project will be Jason Hayes, PE. The RE is a registered PE licensed by the State of New York. The RE will have primary direct responsibility for implementation of the remedial program for the C Block project (BCP Site No. C224435). The RE will certify in the FER that the remedial activities were observed

by QEPs, engineers, scientist and geologists under his supervision and that the remediation requirements set forth in the RAWP and any other relevant provisions of ECL 27-1419 have been achieved in accordance with this RAWP. Other RE certification requirements are listed later in this RAWP.

The RE and their team will document the work of remediation contractors and subcontractors involved in all aspects of remedial construction, including soil excavation, stockpiling, characterization, removal and disposal, air monitoring, EC installation, emergency spill response services, import of backfill, and management of waste transport and disposal. Deviations from the procedures identified in the RAWP that are observed by Langan will be brought to the attention of the Contractor, who will remedy the deviation(s). The RE, QEP, or Project Manager under supervision of the RE, will be responsible for all communication with NYSDEC and NYSDOH.

The RE will review all pre-remedial plans submitted by remediation contractors for compliance with this RAWP and will certify compliance in the FER.

In the FER, the RE will provide the certifications listed in Section 7.5 of this RAWP.

4.2.3 Project/Remediation Schedule

The anticipated project/remediation construction schedule is provided in Section 8.0. Proposed changes, delays or deviations will be promptly communicated to the NYSDEC.

4.2.4 Work Hours

The hours of operation for remedial construction will either conform to the requirements of the NYCDOB construction code or to a site-specific variance issued by the NYCDOB. The NYSDEC will be notified by the Participants of any variances issued by the NYCDOB. The NYSDEC reserves the right to deny alternate remedial construction hours.

4.2.5 Site Security

The site perimeter will be secured with gated, signed, plywood fencing with points of entry in accordance with the NYCDOB and New York City Department of Transportation (NYCDOT) permits and requirements. The purpose of the fencing is to limit site access to authorized personnel, protect pedestrians from site activities, and maintain site security.

Once remedial excavation begins, the site entrance will be monitored during working hours by site security personnel. The project will be guarded in accordance with the NYCDOB codes and requirements.

4.2.6 Traffic Control

Site traffic will be controlled through designated points of access as determined by the remediation contractor. Access points will be continuously monitored and, if necessary, a flagging system will be used to protect workers, pedestrians, and authorized guests. Traffic will also adhere to applicable local, state, and federal laws.

4.2.7 Contingency Plans

The contingency plans described below have been developed to address unexpected discoveries of additional contaminated media and/or USTs.

4.2.7.1 *Discovery of Additional Contaminated Soil*

During remediation and construction, soil will be continuously monitored by the RE's field representative(s) using a PID as well as visual and olfactory field screening to identify previously unknown contamination and soil that may not be suitable for the selected disposal facility(ies). Additional source areas may include the following:

- Grossly contaminated soil, as defined in 6 NYCRR Part 375-1.2(u)
- Soil exceeding the 6 NYCRR Part 371 hazardous criteria for lead
- Concentrated solid or semi-solid hazardous substances per 6 NYCRR Part 375-1.2(au)(1)
- NAPL
- Soil with visual waste material or non-aqueous phase liquid
- Soil containing total SVOCs exceeding 500 parts per million (ppm)
- Soils which exceed the PGW SCOs, as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards
- Soils that create a nuisance condition, as defined in CP-51 Section G

This soil/fill will be segregated and sampled for lab analysis in accordance with disposal facility requirements. If the facility is not permitted to receive the sampled soil, the soil will be disposed of off-site at a permitted facility able to receive the soil based on the characterization data. Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated by phone to the NYSDEC Project Manager. These findings will be detailed in daily reports and subsequent monthly BCP progress reports. Potential additional remedial measures will be coordinated with NYSDEC.

4.2.7.2 *Discovery of Unexpected USTs*

Previously unidentified USTs may be encountered during excavation. Unexpected USTs encountered during remediation or construction will be decommissioned in accordance with 6 NYCRR Parts 612.2 and 613.9 and NYSDEC DER-10 Section 5.5. After the tank, its contents, and associated piping are removed, post-excavation soil samples will be collected per the NYSDEC DER-10 requirements, if deemed necessary by the NYSDEC and the RE. Post-excavation soil sampling is not expected where the remedial excavation will extend below the UST. If encountered, petroleum-impacted soils will be excavated, stockpiled separately, and disposed of off-site at a permitted disposal facility in accordance with applicable regulations. UST closure documentation, including contractor affidavits, waste manifests, invoices, and

tank disposal or recycling receipts, will be included as appendices to the FER. USTs will be registered and decommissioned with the NYSDEC PBS unit, as necessary.

If USTs are encountered during invasive site work, the findings will be promptly communicated to the NYSDEC Project Manager and detailed in daily reports and subsequent monthly BCP progress reports.

4.2.8 Worker Training and Monitoring

Worker training and monitoring will be conducted in accordance with the site-specific CHASP (Appendix C).

4.2.9 Agency Approvals

The Participants addressed all State Environmental Quality Review Act (SEQRA) requirements for this site, as applicable. Permits or government approvals required for remedial construction will be obtained before the start of remedial construction. The planned end use for the site as a residential building conforms to the current zoning for the property as determined by the New York City Department of City Planning (NYCDCP). A Certificate of Occupancy will not be issued for the project unless conformance with the zoning designation is demonstrated. Local, regional, and national governmental permits, certificates or other approvals or authorizations required to perform the remedial and development work will be acquired prior to the start of remediation.

A list of all local, regional and national governmental permits, certificates or other approvals or authorizations required to perform the remediation activities is provided below:

- NYCDOB Foundation, Support of Excavation and New Building Permits

This list will be updated in the FER.

4.2.10 NYSDEC BCP Signage

Signs are optional for BCP sites and will be discussed with the NYSDEC Project Manager. If a sign is to be displayed, it will follow NYSDEC specifications for design and content. The NYSDEC Project Manager would provide details on signage protocol.

4.2.11 Pre-Construction Meeting with the NYSDEC

Prior to the start of remedial construction, a meeting will be held with the NYSDEC, RE, Participants, construction manager, and contractors to discuss project roles, responsibilities, and expectations associated with this RAWP. In addition, an official start notice (via email or letter) will be provided to the NYSDEC at least seven days prior to site mobilization.

4.2.12 Emergency Contact Information

An emergency contact sheet with names and phone numbers is included in the CHASP (Appendix C). That document will define the specific project contacts for use by the NYSDEC and NYSDOH in the case of a day or night emergency.

4.2.13 Remedial Action Costs

The estimated engineering and contractor cost of the preferred split Track1/Track 2 and Track 4 remedy is about \$26.1 million. An itemized and detailed summary of estimated costs for remedial activity is provided as Table 5.

4.3 **Site Preparation**

The RE will work with the Participants and their contractors so that any site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

4.3.1 Mobilization

Before commencing site remediation, the remediation contractor will mobilize to the site and prepare for remedial activities. Mobilization and site preparation activities may include the following:

- Identifying the location of all aboveground and underground utilities (e.g., power, gas, water, sewer, telephone), equipment, and structures (as necessary to implement the remediation)
- Mobilizing necessary remediation personnel, equipment, and materials to the site
- Constructing one or more stabilized construction entrances consisting of virgin crushed stone or RCA at or near the site exit, which takes into consideration the site setting and site perimeter
- Constructing a decontamination pad for trucks, equipment, and personnel that come into contact with impacted materials during remedial activities, as necessary
- Installing erosion and sedimentation control measures, as necessary
- Installing temporary fencing or other temporary barriers to limit unauthorized access to areas where remediation activities will be conducted

4.3.2 Erosion and Sedimentation Controls

Erosion and sediment controls for the site will be designed and documented in a SWPPP in conformance with requirements presented in the NYS Standards and Specifications for Erosion and Sediment Control. BMPs will be employed to mitigate erosion and prevent the migration of sediment off-site throughout construction. The remedial dewatering system may require a Water Withdrawal Permit from the NYSDEC and will require a SPDES discharge permit to allow the discharge of the treated effluent to the East River in accordance with federal, state, and local laws. Alternatively, dewatering discharge could occur to the NYC sewer system with appropriate NYCDEP permitting. Discharge of water generated during remedial construction to surface waters is prohibited without a SPDES permit. Components of the SWPPP are further described in Section 5.4.10.

4.3.3 Monitoring Well Decommissioning

Existing groundwater monitoring wells will be properly decommissioned in accordance with NYSDEC CP-43 when no longer required. The preferred decommissioning method will be to grout all monitoring wells in place with the standard grout mix prescribed in CP-43 via tremie unless the full length of the monitoring

wells are removed during remedial excavation. Well decommissioning will be performed by a licensed well driller and documented by Langan field personnel. Decommissioning documentation will be provided in the FER.

4.3.4 Stabilized Construction Entrance(s)

At a minimum, a temporary gravel construction entrance and exit will be installed for all vehicles exiting the BCP site. The gravel pads will be graded so that runoff water will be directed back into the site. Additional stabilized construction entrances may be added depending on the sequencing and location of remedial excavations. This will be detailed in the Contractor's Site Operations/Site Logistics Plan. The Contractor will protect and maintain the existing sidewalks and roadway at site entrance points.

4.3.5 Utility Marker and Easements Layout

The Participants and their contractors are solely responsible for the identification of utilities that might be affected by work under this RAWP; the implementation of required, appropriate or necessary health and safety measures during performance of work under this RAWP; and the safe execution of invasive and other work performed under this RAWP. The Participants and their contractors must obtain local, state, or federal permits and/or approvals that may be required to perform work under this RAWP. Approval of this RAWP by the NYSDEC does not constitute satisfaction of these requirements.

The presence of utilities and easements on the site will be investigated by the Participants and their contractors. No impediments to the planned work under this RAWP are expected by known utilities or easements on the site.

4.3.6 Sheeting and Shoring

Appropriate management of structural stability of on-site or off-site structures during on-site activities, including excavation, is the sole responsibility of the Participants and their contractors. The Participants and their contractors are solely responsible for safe execution of all invasive and other work performed under this RAWP. The Participants and their contractors must obtain any local, state, or federal permits or approvals that may be required to perform work detailed in this RAWP. Further, the Participants and their contractors are responsible for the implementation of all required, appropriate, or necessary health and safety measures during performance of work under the approved RAWP.

4.3.7 Equipment and Material Staging

The contractor shall notify the RE and the Participants in writing with receipt confirmed, of pending site work mobilization at least 30 calendar days in advance. During mobilization, construction equipment will be delivered to the site, temporary facilities constructed, and temporary utilities installed. The contractor will place and maintain temporary toilet facilities within the work areas for usage by all site personnel. The contractor will provide drinking water for all site personnel.

4.3.8 Truck Inspection/Decontamination Area

The contractor will construct decontamination pads/truck inspection stations at each site entrance/exit planned for construction vehicle usage. Before exiting the site, trucks will be required to stop at a truck inspection station and will be examined for evidence of contaminated soil on the undercarriage, body, and wheels. If observed, soil or debris will be removed. Brooms, shovels, and/or potable water will be utilized for the removal of soil from vehicles and equipment, as necessary. The location of decontamination pads may change periodically to accommodate the contractor's sequencing of work. When required, the pads will be constructed by the contractor to collect wastewater for off-site disposal and discharge, if generated during decontamination activities. The design will consider adequate space to decontaminate site equipment and vehicles and sloping and liners to facilitate collection of wastewater. Any collected truck rinse and decontamination wastewater shall be either discharged in accordance with the contractor's SPDES permit or tested and transported to an off-site disposal facility that is permitted to accept this waste, in accordance with applicable local, state, and federal regulations. The contractor is responsible for collecting soil that is tracked immediately off-site and returning the soil to the site. The RE's on-site representative will document that trucks leaving the site are properly decontaminated. The Contractor will maintain the decontamination pad(s) throughout the duration of site work. Prior to demobilization, the Contractor will deconstruct the pads and dispose of materials as required.

If the Contractor uses high pressure washing methods, the Contractor shall provide splash protection around the vehicle decontamination facility to prevent splatter and mist migrating off-site during the vehicle decontamination process. Splash protection shall be temporary and stable and capable of being dismantled in the event of high winds.

4.3.9 Site Fencing

The site perimeter will be secured with gated, signed, plywood fencing. The purpose of the fencing is to limit site access to authorized personnel, protect pedestrians from site activities and maintain site security.

4.3.10 Demobilization

The Contractor will be responsible for demobilizing all labor, equipment, and materials not designated for off-site disposal. The RE will be responsible to document that the Contractor performs follow-up coordination and maintenance for the following activities:

- Restoration of areas that may have been disturbed to accommodate support areas (e.g., staging areas, decontamination areas, storage areas, temporary water management areas, and access areas)
- Removal of temporary access areas (whether on-site or off-site) and restoration of disturbed access areas to pre-remediation conditions

- Removal of sediment and erosion control measures and disposal of materials in accordance with acceptable rules and regulations
- Equipment decontamination
- General refuse disposal

4.4 Reporting

Daily and monthly reports and an FER will be submitted to the NYSDEC as required to document the remedial action. Copies of daily and monthly reports will be included in the FER. The Project RE responsible for certifying all reports will be an individual licensed to practice engineering in NYS; Jason Hayes, PE of Langan, will have this responsibility. Should Mr. Hayes become unable to fulfill this responsibility, another suitably qualified PE will take his place. In addition to the periodic reports and the FER, copies of all relevant contractor documents will be submitted to the NYSDEC.

4.4.1 Daily Reports

Daily reports will be submitted to the NYSDEC and NYSDOH Project Managers by the end of the following business day, or at a frequency acceptable to them, and will include:

- An update of progress made during the reporting day, including a photographic log;
- Locations of work and quantities of soil/fill imported to and exported from the site;
- References to map for site activities;
- A summary of any and all complaints with relevant details (names, phone numbers);
- A summary of CAMP findings, including any exceedances and actions taken to address the exceedances;
- An explanation of notable site conditions;
- A description of anticipated site activities; and
- The NYSDEC-assigned project number will appear on all reports

Daily progress will be detailed on a site map. These reports will include a summary of air sampling results, odor and dust problems and corrective actions, and all complaints received from the public, if any.

Daily reports are not intended to be the mode of communication for notification to the NYSDEC of emergencies (accident, spill), requests for changes to the RAWP or other sensitive or time critical information. However, such conditions must also be included in the daily reports. Emergency conditions and changes to the RAWP will be addressed directly to NYSDEC Project Manager via personal communication.

4.4.2 Monthly Reports

Monthly reports will be submitted to the NYSDEC and NYSDOH Project Managers by the tenth of the following month of the reporting period and will include the following information, as well as the information required in the BCA:

- Activities related to the site during the previous reporting period and those anticipated for the next reporting period, including a quantitative presentation of work performed (i.e., tons of soil and fill exported and/or imported)
- Description of approved activity modifications, including changes to the scope of work and/or schedule
- Sampling results received following internal data review and validation, as applicable
- An update of the remedial schedule including the percentage of project completion, unresolved delays encountered or anticipated that may affect the future schedule, and efforts made to mitigate such delays

4.4.3 Other Reporting

Photographs will be taken of all remedial activities and submitted to NYSDEC in digital format. Photographs will illustrate all remedial program elements and will be of acceptable quality. Representative photos of the site before any remedial actions and of each contaminant source, source area, and site structure before, during, and after remediation will be provided. Photographs will be included in the daily reports as needed, and a comprehensive collection of photos will be included in the FER.

Progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the FER. Regular updates to the metrics used (Spreadsheets for Environmental Footprint Analysis [SEFA], SiteWise, or another Department-approved method) should be included.

Site records for remedial work will be appropriately documented and maintained on-site during the project and be available for inspection by NYSDEC and NYSDOH staff.

4.4.4 Complaint Management Plan

The management plan for documenting complaints is detailed below.

Item	Description
Approach	Complaints regarding remediation or construction activities/operations will be minimized and mitigation measures will be implemented to reduce the incidence of complaints.
Objective	To manage environmental complaints from the community regarding construction or remediation.

Item	Description
Implementation Strategy/Mitigation Measures	<p>All complaints will be documented on a complaint register. The register will be maintained as an ongoing record.</p> <p>Each entry will include the following information:</p> <ul style="list-style-type: none"> • Time, date and nature of complaint; • Type of communication (telephone, letter, personal, etc.); • Name, contact address and contact number; and • Response and investigation undertaken as a result of the complaint and action taken with the signature of the responsible person. <p>Each complaint will be investigated as soon as practicable in relation to the requirements.</p>
Monitoring	<p>A representative from the Participants or the RE will follow up on the complaint within two weeks of receipt to ensure it has been resolved.</p>
Reporting	<p>Upon receipt, the NYSDEC will be notified. Complaints and resolutions will be documented in the daily reports.</p>
Corrective Action	<p>Should an incident or failure to comply occur in relation to the management of environmental complaints, one or more of the following corrective actions will be undertaken as appropriate:</p> <ul style="list-style-type: none"> • Conduct additional training of staff to handle environmental complaints; • Investigate why the environmental complaint was not addressed within the specified time frame; and • Investigate the complaint and action follow-up according to the investigation results.

4.4.5 Deviations from the RAWP

Necessary deviations from the RAWP will be coordinated with the NYSDEC in advance. Notification will be provided to the NYSDEC by telephone/email for conditions requiring immediate action (e.g., conditions judged to be a danger to the surrounding community). Addendums to the RAWP will be prepared, as necessary and will include:

- Reasons for deviating from the approved RAWP
- Approval process to be followed for changes/additions to the RAWP
- Effect of the deviations on the overall remedy

5.0 REMEDIAL ACTION: SOURCE MATERIAL REMOVAL

5.1 Soil Cleanup Objectives

A split Track 1/Track 2 and Track 4 remediation is proposed; therefore, the applicable site-specific SCOs are as follows:

- Track 1/Track 2 area: Unrestricted Use SCOs listed in 6 NYCRR Part 375-6.8(a), or Restricted Use Residential SCOs listed in 6 NYCRR Part 375-6.8(b) if the remedy defaults to a Track 2 remedy
- Track 4 area: Restricted Use Residential SCOs with relevant PGW SCOs listed in 6 NYCRR Part 375-6.8(b).

Remaining soil contamination in the Track 4 area above the RURR and relevant PGW SCOs will be covered with a composite cover system to eliminate exposure pathways to remaining contaminated soil in the Track 4 areas of the site. The composite cover system will consist of 12-to-20-inch thick concrete foundation slab and its underlying aggregate subbase and 12-to-24-inch thick foundation walls for Building C1, hardscaped walkways, sidewalks and roadways (Connector Road and Freeman Street) with surface concrete and/or an underlying concrete slab base of varying thickness, and landscaped areas with at least 2 feet of clean soil/fill that meets the lower of the RURR and PGW SCOs or virgin quarry stone. Imported fill will meet the SCOs for the proposed site use as set forth in Part 375-6.7(d).

Management of non-native historical fill and soil on-site will be conducted in accordance with the SFMP described in Section 5.4. UST closures will conform to the criteria defined in 6 NYCRR Part 613.9, NYSDEC CP-51, and other applicable NYSDEC UST closure requirements including DER-10 Chapter 5.5. The Track 1, Track 2, and Track 4 site-specific SCOs are provided in Tables 1, 2, and 3.

5.2 Remedial Performance Evaluation

5.2.1 Soil

Confirmation soil samples will be collected from the excavation base at a frequency of one per 900 square feet per NYSDEC DER-10. Sidewall samples will not be collected from within the Track 1/Track 2 area because the SOE system will preclude access to excavation sidewalls. An estimated 64 confirmation soil samples, plus QA/QC samples, will be collected to confirm remedial performance and will be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, herbicides, metals (including hexavalent and trivalent chromium), cyanide, PFAS, and 1,4-dioxane. Over-excavation may be required as necessary to remove soil that does not comply with the UU or RUR SCOs. If over-excavation is completed, additional confirmation samples will be required.

Documentation soil samples will be collected from the excavation base at a frequency of one per 900 square feet within the footprint of Building C1, every 2,000 square feet in the waterfront access area and private amenity terrace, and every 1,500 square feet in other areas of the site including the Connector Road and Freeman Street. Sidewall samples will not be collected from within footprint of Building C1 or utility corridors because SOE measures (e.g., sloping, soil mix columns or sheet pile walls, or other

shoring/shielding SOE) will preclude access to excavation sidewalls. Documentation soil samples will be collected in areas of the site where excavation is not proposed after removal of the existing surface cover system and prior to placement of the demarcation layer (where appropriate) and imported fill. The 0- to 2-foot sample interval from the 2022 RI borings will serve as a documentation endpoint sample for areas where the upper two feet of existing non-native historical fill or soil will not be disturbed during remedial and development-related excavation. If any of the RI 0- to 2-foot sample intervals are disturbed during construction, additional documentation endpoint soil samples will be collected. An estimated 71 new documentation endpoint soil samples, plus QA/QC samples, will be collected to document remaining contamination and will be analyzed for the Part 375 list of VOCs, SVOCs, PCBs, pesticides, herbicides, metals (including hexavalent and trivalent chromium), cyanide, PFAS, and 1,4-dioxane. The proposed endpoint sampling locations are presented on Figure 9.

Confirmation and documentation samples will be transported under standard chain-of-custody protocol to an NYSDOH ELAP-approved laboratory for analysis of 6 NYCRR Part 375 VOCs, SVOCs, PCBs, pesticides, herbicides, metals (including hexavalent and trivalent chromium), cyanide, PFAS and 1,4-dioxane. Laboratory analyses will be conducted in accordance with USEPA SW-846 methods and NYSDEC Analytical Services Protocol (ASP) Category B deliverable format.

Quality control procedures for confirmation and documentation soil sampling are included in the QAPP (Appendix G). Confirmation and documentation sample analytical results will be provided in the NYSDEC's electronic data deliverable (EDD) format for EQUIS™. QA/QC procedures required by the NYSDEC ASP and SW-846 methods will be followed, including instrument calibration, standard compound spikes, surrogate compound spikes, and analysis of quality control samples. The laboratory will provide sample bottles that are pre-cleaned and preserved. Where there are differences in the SW-846 and NYSDEC ASP requirements, the NYSDEC ASP shall take precedence. Guidance on the sampling frequency is presented in NYSDEC DER-10 Section 5.4.

5.2.2 Data Usability Summary Report

ASP Category B deliverables will be prepared for all remedial performance samples collected during implementation of this RAWP. Data Usability Summary Reports (DUSR) will be prepared by a qualified data validator and the findings will be reported in the FER. Confirmation and documentation sample results will be provided in NYSDEC electronic data deliverable (EDD) format for EQUIS™.

5.2.3 Reporting

Analytical laboratories that analyze endpoint soil samples and report results will be NYSDOH ELAP-certified laboratories. The FER will provide a tabular and map summary of all confirmation and documentation endpoint sample results and exceedances of applicable SCOs, if any.

5.3 **Estimated Soil/Fill Removal Quantities**

As a pre-requisite to commencement of site remediation, the contractor will remove any existing asphalt and concrete surface cover systems and manage it as construction and demolition (C&D) debris in

accordance with Part 360 and 361 regulations. The estimated quantity of soil/fill to be removed from the site for a split Track1/Track 2 and Track 4 cleanup is about 50,300cubic yards. The remedial excavation extents are shown on Figure 8. Over-excavated areas to remove additional source areas will require backfill meeting the lower of the RURR or PGW SCOs, RCA, or virgin quarry stone. RCA will not be used as backfill within 2 feet of the groundwater table or as drainage material. The estimated quantity of soil to be imported to the site for backfill is about 26,000 cubic yards.

5.4 Soil/Fill Management Plan

This section presents the approach to management, disposal, and reuse of soil and fill excavated from the site. This plan is based on the current knowledge of site conditions and will be augmented with the additional data collected during remediation. Langan field personnel, under the direction of the RE or QEP, will monitor and document the handling and transport of contaminated soil and non-native historical fill removed from the site for disposal as a regulated solid waste. Langan field personnel, under the direction of the RE or QEP, will assist the remedial contractor in identifying impacted soil and non-native historical fill during excavation, determining soil and non-native historical fill suitable for direct load-out versus temporary on-site stockpiling, selection of samples for waste characterization, and determining the proper off-site disposal facility for soil and non-native historical fill. Separate stockpile areas will be constructed as needed to stage various excavated materials with the intent to more efficiently manage and characterize the soil and non-native historical fill and to avoid commingling of impacted soil and non-native historical fill with non-impacted soil.

5.4.1 Soil Screening Methods

Visual, olfactory, and PID screening and assessment will be performed by Langan field personnel under the direct supervision of the RE or QEP during excavations into known or potentially contaminated soil and non-native historical fill. Soil screening will be performed regardless of when the invasive work is done and will include all excavation and invasive work performed during the remedy and during any development phase, such as excavations for foundations and utility work before issuance of the Certificate of Completion.

5.4.2 Stockpile Methods

Soil stockpile areas, if needed for the different types of soil and non-native historical fill, will be constructed for staging of site soil, pending loading or waste characterization testing. Separate stockpile areas will be constructed to avoid comingling soil, non-native historical fill, and differing waste types. All stockpile areas will meet the following minimum requirements:

- The excavated soil and non-native historical fill will be placed onto an impermeable surface or on minimum thickness of 8-mil low-permeability plastic sheeting or tarps of sufficient strength to prevent puncture during use; separate stockpiles will be created where soil and non-native historical fill types are different. The use of multiple layers of thinner liners is permissible.

- Equipment and procedures will be used to place and remove the soil to minimize the potential to jeopardize the integrity of the liner.
- Stockpiles will be covered at the designated times (see below) with minimum 8-mil plastic sheeting or tarps, which will be securely anchored to the ground. Stockpiles will be routinely inspected and broken sheeting covers will be promptly replaced.
- Stockpiles that have reached their capacity will be appropriately covered until they are ready for loading for off-site transport.
- Active stockpiles (e.g., stockpiles that have not reached their capacity) will be covered at the end of each workday.
- Each stockpile area will be encircled with silt fences and hay bales, as needed, to contain and filter particulates from rainwater that has drained off the soils, and to mitigate the potential for surface water run-off off-site.
- Stockpiles will be inspected at a minimum once each day and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection by the NYSDEC.

5.4.3 Soil/Fill Characterization, Excavation and Loading

Excavated soil and non-native historical fill will be characterized for off-site disposal in a manner suitable to the receiving facility and in conformance with applicable permits. Sampling and analytical methods, sampling frequency, analytical results and QA/QC data will be reported in the FER. All data available for soil or non-native soil to be disposed of at a given facility must be submitted to the disposal facility for review and approval before shipment and receipt.

The Participants and their contractors are solely responsible for safe execution of invasive work, the excavation support, structures that may be affected by excavations, and other work performed under this RAWP. Field personnel under the direct supervision of the RE or QEP will observe and document all invasive work and the excavation and loading of excavated soil and non-native historical fill. Development-related grading cuts and fills will not be performed without NYSDEC approval of the RAWP, and the RE will provide that any site development activities will not interfere with, or otherwise impair or compromise, remedial activities proposed in this RAWP.

The RE's field personnel will be responsible for monitoring egress points for truck and equipment transport from the site and ensuring that the contractor is notified of their obligation to immediately clean the sidewalks and streets of dirt and other materials derived from the site during site remediation and development. Non-compliance will be reported to the NYSDEC. Locations where vehicles enter or exit the site shall be inspected daily for evidence of off-site sediment tracking. Cleaning of the adjacent streets will be performed as needed to maintain a clean condition with respect to site-derived materials. Loaded vehicles leaving the site will be appropriately lined, securely covered, manifested, and placarded in accordance with appropriate federal, state, and local (NYCDOT) requirements, and all other applicable

transportation requirements. On-site, mechanical processing of non-native historical fill and contaminated soil is prohibited unless otherwise approved by the NYSDEC.

5.4.4 Soil/Fill Transport Off-Site

Transport of soil and non-native historical fill will be performed by licensed haulers in accordance with appropriate local, state and federal regulations, including 6 NYCRR Part 364 and NYC's Business Integrity Commission (BIC) Trade Waste Hauler requirements. Haulers will be appropriately licensed and trucks properly placarded. Trucks will enter and exit the site using dedicated ingress/egress points. Trucks loaded with site soil and non-native historical fill will exit the vicinity of the site using only approved truck routes. Proposed inbound and outbound truck routes to the site are shown on Figure 10. These routes consider:

- Limiting transport through residential areas and past sensitive sites
- Use of city-mapped truck routes
- Minimization of off-site queuing of trucks entering the facility, to the extent possible
- Limiting total distance to major highways
- Promoting safety in access to highways
- Overall safety in transport

Trucks will be prohibited from excessive stopping and idling in the neighborhood outside of the site. Egress points for truck and equipment transport from the site will be kept clean of soil and non-native historical fill during remediation and new construction activities. To the extent possible, queuing of trucks will be performed on-site to minimize off-site disturbance. Off-site queuing will be minimized.

Soil and non-native historical fill transported by trucks exiting the site will be secured with opaque, tight-fitting covers. Loose-fitting canvas-type or mesh truck covers will be prohibited. If loads contain wet soil and non-native historical fill capable of producing free liquid, truck liners will be used.

5.4.5 Soil/Fill Disposal Off-Site

Excavated soil/fill and other solid wastes removed from the site will be handled, transported and disposed of in accordance with local, state (including 6 NYCRR Parts 360, 361, 370, 371, and 372) and federal regulations. If disposal of fill is proposed for unregulated disposal (i.e., clean soil removed for development purposes), a formal request with an associated plan will be made to the NYSDEC's Project Manager. Unregulated off-site management of materials from this site is prohibited without formal NYSDEC approval.

Excavated non-native historical fill and soil must be disposed of at an in-state or out-of-state facility licensed to accept the material. Non-hazardous fill and contaminated soil transported off-site will be handled, at a minimum, as a solid waste per 6 NYCRR Part 360. Non-hazardous fill and contaminated soil excavated from the site are prohibited from being disposed of at Part 360 Registration Facilities (also known as Soil Recycling Facilities). Non-hazardous fill can be sent to a C&D debris handling and recovery

facility only with written approval from the NYSDEC. Hazardous waste is prohibited from being sent to a C&D debris handling and recovery facility (6 NYCRR Part 361-5). Hazardous wastes derived from the site will be managed, transported and disposed of in full compliance with applicable local, state, and federal regulations.

The following documentation will be obtained and reported by the RE for each off-site disposal location used in this project to fully demonstrate and document that the disposal or beneficial reuse of soil and non-native historical fill derived from the site conforms to applicable laws:

- 1) A letter from the RE or BCP Participants to the receiving facility describing the soil or non-native historical fill to be disposed of and requesting formal written acceptance of the material. This letter will state that the soil or non-native historical fill to be disposed of or beneficially reused is contaminated material generated at an environmental remediation site in NYS. The letter will provide the project identity and the name and phone number of the RE. The letter will include, as an attachment, a summary of all chemical data for the soil or non-native historical fill being transported (including available site characterization data).
- 2) A letter from each receiving facility stating it is in receipt of the correspondence (above) and is approved. These documents will be included in the FER.

Soil that is contaminated but non-hazardous and is removed from the site is considered by the NYSDEC Division of Materials Management (DMM) to be C&D material with contamination not typical of virgin soil. Soil and non-native historical fill will be considered a regulated solid waste unless a BUD is processed stating otherwise. This soil may be sent to a permitted Part 360 landfill in New York or other appropriate out-of-state disposal facility permitted to accept contaminated soil from a brownfield site. This soil may be sent to a permitted C&D processing facility without permit modifications only upon prior notification of NYSDEC Region 2 DMM. This material is prohibited from being sent or redirected to a New York Part 361.5 or 360-15 Registration Facility. In this case, as dictated by DMM, special procedures will include, at a minimum, a letter to the C&D facility that provides a detailed explanation that the material is derived from an NYSDEC DER remediation site, that the material is contaminated, and that the material must not be redirected to on-site or off-site Soil Recycling Facilities. The letter will provide the project identity and the name and phone number of the RE. The letter will include as an attachment a summary of chemical data for the material being transported.

The FER will include an accounting of the destination of soil removed from the site during implementation of the remedy, including excavated soil, contaminated soil, fill, solid waste, and hazardous waste, if identified. Demolition operations, including characterization, handling and disposal of associated waste and C&D debris will be overseen or reviewed by the RE. These operations should be performed by the contractor in accordance with applicable guidance and regulations. Documentation associated with disposal of each soil type must also include records and approvals for receipt of the soil. This information will also be presented in a table to be included in the FER.

A “Bill of Lading” or “Manifest” system or equivalent will be used for off-site movement of non-hazardous wastes and contaminated soil. This information will be reported in the FER. Hazardous wastes derived from the site, if any, will be stored, transported, and disposed of in compliance with applicable local, state, and federal regulations.

Appropriately licensed haulers, in compliance with applicable local, state, and federal regulations, will be used to transport the material removed from this site.

5.4.6 Soil/Fill Reuse On-Site

Excavated soil and non-native historical fill may be reused on the site under the proposed remedy. Soil may be reused on site beneath the composite cover system, if it is non-hazardous, not grossly contaminated and does not exhibit petroleum-like or chemical-like staining or odors, and meets the requirements in this section and 6 NYCRR Part 360. Excavated soil may be used as backfill, without additional sampling, for the excavation from which the soil was removed, or in areas of similar physical characteristics at the site. A Request to Import/Reuse Fill or Soil form, which can be found at <http://www.dec.ny.gov/regulations/67386.html> will be prepared and submitted to the NYSDEC project manager for review and approval. Soil acceptable for reuse must be non-hazardous and meet the lower of the RURR and relevant PGW SCOs (unless an exemption is granted by the NYSDEC) and be placed under an impervious cover system.

Non-native historical fill or soil removed during the implementation of the remedy or removed for grading or other purposes will not be reused within a cover soil layer, within landscaping berms, or as backfill for subsurface utility lines. Organic matter (wood, roots, stumps, etc.) or other solid waste derived from clearing and grubbing of the site is prohibited for reuse on-site. Soil deemed unfit for reuse will be transported off-site for disposal.

5.4.7 Fluids Management

Remedial and development-related excavation will extend below the current groundwater table and dewatering will be required to lower the groundwater table below the required excavation depths. Liquids to be removed from the site, including dewatering fluids, will be handled, transported, managed, and/or disposed of in accordance with applicable local, state, and federal regulations. A temporary dewatering and pre-treatment system will be designed by a NYS-licensed Professional Engineer under contract to the Participants. The remedial dewatering system is still under design at the time. Design and specifications for the dewatering and pre-treatment system will be submitted to the NYSDEC when available. If the construction dewatering system design capacity exceeds an extraction volume of 45 gallons per minute/100,000 gallons per day, a Water Withdrawal Permit will be obtained from the NYSDEC. The remedial dewatering system will require a State Pollutant Discharge Elimination System (SPDES) discharge permit to allow the discharge of the treated effluent to the East River in accordance with federal, state, and local laws. Alternatively, dewatering discharge could occur to the NYC sewer system with appropriate NYCDEP permitting.

Dewatering is considered a remedial component as it is necessary to facilitate the remedial excavations in the Track 1/Track 2 area and to a lesser extent in the Track 4 area.

During remedial excavation, sediment and erosion controls will be implemented to prevent groundwater encountered during excavation in saturated soils from flowing outside of the site. Trucks will be lined to contain free liquids in saturated soils from leaking out of truck beds.

Dewatering fluids will not be recharged back to the land surface or subsurface. Dewatering fluids will be managed off-site. Discharge of water generated during remedial construction to surface waters (i.e., a local pond, stream, and/or river) is prohibited without a SPDES permit.

5.4.8 Demarcation

After the completion of soil removal and any other invasive remedial activities and prior to backfilling with reused site fill or imported clean fill, a land survey will be performed by a NYS licensed surveyor. The survey will define the top elevation (in NAVD88) of residual contaminated non-native historical fill and soil across the entire Track 4 area, including the waterfront access area, private amenity terrace, Connector Road and Freeman Street, every 25-feet on center. No survey will be completed within the footprint of Building C1.

The survey will measure the grade covered by the visual demarcation layer before the placement of the cover system materials, including hardscaped walkways, sidewalks and roadways (Connector Road and Freeman Street) with an underlying concrete slab base and/or landscaped areas with at least 2 feet of clean soil/fill to eliminate exposure pathways. A physical demarcation layer, consisting of orange snow fencing, geotextile material or equivalent material suitable for long-term burial will be placed on top of this survey surface (excluding Building C1) to provide a visual reference. This visual demarcation layer will constitute the top of the 'Residuals Management Zone', the zone that requires adherence to special conditions for disturbance of contaminated remaining soil defined in the SMP.

The impermeable, continuous, concrete building slab of Buildings C1 will also service as physical demarcation layer atop remaining contaminated soil. This demarcation layer will constitute the top of the 'Residuals Management Zone', the zone that requires adherence to special conditions for disturbance of contaminated remaining soil defined in the SMP.

5.4.9 Backfill from Off-site Sources

Backfill proposed for import will be reviewed by the RE based upon documentation that the materials are in compliance with provisions in this RAWP before they are shipped to the site. Imported backfill must meet the UU SCOs (or lower of RUR and PGW SCOs) in the Track 1/Track 2 areas and the lower of RURR and PGW SCOs in the Track 4 areas (as set forth in Table 375-6.7(d) of 6 NYCRR Part 375) or be comprised of other acceptable fill material, such as RCA or crushed virgin stone from a permitted mine or quarry. Material from industrial sites, spill sites, other environmental remediation sites, or other potentially contaminated sites will not be imported to the site. Solid waste will not be imported to the site. A Request to Import/Reuse Fill or Soil form, which can be found at <http://www.dec.ny.gov/regulations/67386.html>

will be prepared and submitted to the NYSDEC project manager for review and approval. Trucks entering the site with imported soil will be securely covered with tight fitting covers.

Backfill material will consist of clean fill or other acceptable fill material such as virgin stone from a quarry or RCA. If RCA is imported to the site, it will be from a NYSDEC-registered facility in compliance with 6 NYCRR Part 360 registration and permitting requirements for the period of acquisition of RCA. Import of RCA may require a site-specific Beneficial Use Determination (BUD), if required by NYSDEC. RCA imported from compliant facilities will not require chemical testing, unless required by the NYSDEC under the terms for operation of the facility. RCA imported to the site must be derived from recognizable and uncontaminated concrete. RCA is not acceptable for and will not be used as cover or drainage material. RCA must contain less than 10% by weight passing a No. 80 sieve to be excluded from NYSDEC DER-10 sampling requirements. Virgin stone must originate from a mine or quarry and contain less than 10% by weight passing a No. 10 sieve to be excluded from NYSDEC DER-10 sampling requirements. Sampling may be required by NYSDEC under the terms for operation of the facility. Additional exemptions from testing requirements may be approved by NYSDEC Project Manager based on their review of requests by the PE/QEP.

Qualified environmental personnel will collect representative samples at a frequency consistent with DER-10 Section 5.4(e) and Table 5.4(e)(10). The samples will be analyzed for Part 375 VOCs, SVOCs, pesticides, herbicides, PCBs, cyanide, metals (including trivalent and hexavalent chromium), PFAS, and 1,4-dioxane by a NYSDOH ELAP-certified laboratory with the requirement for NYSDEC ASP Category B deliverable format. Upon meeting these criteria, the clean fill can be transported to the site and staged on-site until it is placed in service; in all cases, the clean fill must be segregated from any exposed or stockpiled contaminated site soil.

Soil that meets 'exempt' fill requirements under 6 NYCRR Part 360, but does not meet backfill or cover soil objectives, will not be imported to the site without prior approval by NYSDEC. The contents of this RAWP and NYSDEC approval of this RAWP should not be construed as an approval for this purpose.

Prior to material import, the RE will review documentation from each import facility, including the facility name, address, permit/registration, and site history, if necessary, in accordance with DER-10. Proposed import material will be approved by both the RE and the NYSDEC. Upon arrival, import material will be screened for visual, olfactory, and instrumental evidence of contamination.

Facilities will be identified in the FER. The FER will include the following certification by the RE: "I certify that all import of soil from off-site, including source evaluation, approval and sampling, has been performed in a manner that is consistent with the methodology defined in the RAWP".

5.4.10 SWPPP

A SWPPP will be required for the site. Silt fencing, hay bales, or other appropriate barriers to sediment transfer will be installed around the down-gradient perimeter of the remedial construction area, as required. Sediment barriers will be installed and inspected once a week and after every storm event. Results of inspections will be recorded in a logbook and maintained at the site and available for inspection

by NYSDEC. Necessary repairs to silt fencing and/or hay bales shall be made immediately. Accumulated sediments will be removed as required to keep the barrier and hay bale check functional. Undercutting or erosion of the silt fence toe anchor shall be repaired immediately with appropriate backfill materials. Manufacturer's recommendations will be followed for replacing silt fencing damaged due to weathering. Erosion and sediment control measures identified in the RAWP shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to the sewer system. Implementation of the SWPPP will mitigate the discharge of erosional sediment to the NYC municipal sewer system and the East River.

5.4.11 Contingency Plan

If USTs or other previously unidentified contaminant sources are found during on-site remedial excavation or development-related construction, sampling will be performed on the source material, if encountered, and surrounding subsurface materials (e.g., sediment, soil, stone). Analytical parameters will include Target Compound List/Part 375 VOCs and SVOCs (including 1,4-dioxane), Target Analyte List metals, PCBs, pesticides, herbicides, and/or PFAS based on the nature of the likely contaminants. NYSDEC approval shall be received before limiting analytical parameters for collected samples.

Identification of unknown or unexpected contaminated media identified by screening during invasive site work will be promptly communicated to NYSDEC's Project Manager. These findings will also be detailed in daily and subsequent monthly BCP progress reports.

5.4.12 Extreme Storm Preparedness and Response Contingency Plan

Damage from flooding or storm surge can include dislocation of soil and stockpiled materials, dislocation of site structures and construction materials and equipment, and dislocation of SOE structures. Damage from wind during an extreme storm event can create unsafe or unstable structures, damage safety structures and cause downed power lines creating dangerous site conditions and loss of power. In the event of emergency conditions caused by an extreme storm event, the Participants will undertake the following steps for site preparedness prior to the event and response after the event.

5.4.12.1 *Storm Preparedness*

Preparations in advance of an extreme storm event will include the following: containerized hazardous materials and fuels will be removed from the property or protected and secured; loose materials will be secured to prevent dislocation and blowing by wind or water; heavy equipment such as excavators and generators will be removed from excavated areas, trenches and depressions on the property to high ground or removed from the property; an inventory of the property with photographs will be performed to establish conditions for the site and equipment prior to the event; stockpile covers for soil and fill will be secured by adding weights such as sandbags for added security and worn or ripped stockpile covers will be replaced with competent covers; stockpiled hazardous wastes will be removed from the property; stormwater management systems will be inspected and fortified, including, as necessary: clean and

reposition silt fences and hay bales; clean storm sewer filters and traps; and secure and protect pumps and hosing.

5.4.12.2 *Storm Response*

At the conclusion of an extreme storm event, as soon as it is safe to access the property, a complete inspection of the property will be performed. A site inspection report will be submitted to NYSDEC at the completion of site inspection and after the site security is assessed. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. Damage from storm conditions that result in acute public safety threats, such as downed power lines or imminent collapse of buildings, structures or equipment will be reported to public safety authorities via appropriate means such as calling 911.

Petroleum spills will be reported to NYSDEC within 2 hours of identification and as consistent with State regulations. Public safety structures, such as construction security fences will be repaired promptly to eliminate public safety threats. Debris will be collected and removed.

Dewatering will be performed in compliance with existing laws and regulations and consistent with emergency notifications, if any, from proper authorities. Eroded areas of soil including unsafe slopes will be stabilized and fortified. Dislocated materials will be collected and appropriately managed. SOE structures will be inspected and fortified, as necessary. Impacted stockpiles will be contained and damaged stockpile covers will be replaced. Stormwater control systems and structures will be inspected and maintained, as necessary.

If soil or fill materials are discharged off site to adjacent properties, property owners and NYSDEC will be notified, and a corrective measure plan designed to remove and clean dislocated material will be submitted to NYSDEC and implemented following approval by NYSDEC and granting of site access by the property owner. Impacted off-site areas may require characterization based on site conditions, at the discretion of NYSDEC.

If onsite petroleum spills are identified, a QEP will determine the nature and extent of the spill and report to NYSDEC's spill hotline at (800) 457-7362 within statutory defined timelines. If the source of the spill is ongoing and can be identified, it should be stopped if this can be done safely. Potential hazards will be addressed immediately, consistent with guidance issued by NYSDEC.

5.4.12.3 *Storm Response Reporting*

A site inspection report will be submitted to NYSDEC at the completion of site inspection. An inspection report will be used for this purpose. Site conditions will be compared to the inventory of site conditions and material performed prior to the storm event and significant differences will be noted. The site inspection report will be sent to the NYSDEC project manager and will include the site name, address, tax block and lot, site primary and alternate contact name and phone number.

Damage and soil release assessment will include: whether the project had stockpiles; whether stockpiles were damaged; photographs of damage and notice of plan for repair; report of whether soil from the site

was dislocated and whether any of the soil left the site; estimates of the volume of soil that left the site, nature of impact, and photographs; description of erosion damage; description of equipment damage; description of damage to the remedial program or the construction program, such as damage to the SOE; presence of on-site or off-site exposure pathways caused by the storm; presence of petroleum or other spills and status of spill reporting to NYSDEC; description of corrective actions; and schedule for corrective actions.

This report should be completed and submitted to the NYSDEC project manager with photographs within 24 hours of the time of safe entry to the property after the storm event.

5.4.13 Community Air Monitoring Plan

Community air monitoring will be conducted in compliance with the site-specific CAMP accordance with the NYSDOH Generic CAMP included as Appendix D. CAMP will be implemented during instructive work within site soil/fill. CAMP will cease after completion of the defined remedial excavation and placement of acceptable composite cover systems, unless another source of contamination is identified.

The CAMP includes real-time monitoring for VOCs and particulates at the downwind perimeter of ground-intrusive activities. Ground intrusive activities include, but are not limited to, soil/waste excavation and handling and excavation of trenches and test pits. When ground intrusive work is being performed within 20 feet of a sidewalk, a CAMP station (including particulate and organic vapor monitoring equipment) will be situated between the work zone and the sidewalk. Periodic monitoring for VOCs is required during non-intrusive activities such as the collection of groundwater samples from existing monitoring wells. "Periodic" monitoring during sample collection might reasonably consist of collecting a reading upon arrival at a sample location, monitoring while opening a well cap or overturning soil, monitoring during well bailing/purging, and collecting a reading before leaving a sample location.

Upwind/background concentrations of particulates and VOCs will be measured at the start of each workday. CAMP monitoring for VOC levels will be conducted with PIDs or other instruments capable of measuring total VOC concentrations, and monitoring for dust/particulates will be conducted with particulate sensors equipped with filters to detect particulate matter less than PM10. Monitoring for particulates and odors will be conducted during all ground intrusive activities by the RE's field inspector. The work zone is defined as the general area in which machinery is operating in support of remediation. A portable PID will be used to monitor the work zone and for periodic monitoring of VOCs during activities such as soil and groundwater sampling. The site perimeter will be visually monitored for fugitive dust emissions.

The following actions will be taken based on measured VOC levels:

- If total VOC levels exceed 5 parts per million (ppm) above background for the 15-minute average at the perimeter, work will be temporarily halted and monitoring continued. If levels readily decrease (per instantaneous readings) below 5 ppm above background, work will resume with continued monitoring.

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

The following actions will be taken based on measured particulate levels and visual dust observations:

- If the downwind particulate level is $100 \mu\text{g}/\text{m}^3$ greater than background (upwind perimeter) for the 15-minute period or if airborne dust is observed leaving the work zone, then dust suppression must be employed. Work may continue with dust suppression techniques provided that 15-minute average downwind PM10 levels do not exceed $150 \mu\text{g}/\text{m}^3$ above the background level and provided that no visible dust is migrating from the work zone.
- If, after implementation of dust suppression techniques, 15-minute average downwind PM10 levels are greater than $150 \mu\text{g}/\text{m}^3$ above the background level, work must be stopped and a re-evaluation of work initiated. Work can resume provided that dust suppression measures and other controls are successful in reducing the downwind 15-minute average PM10 concentration to within $150 \mu\text{g}/\text{m}^3$ of the upwind level and in preventing visible dust migration.

Due to the reported spill and the presence of petroleum-impacted soil onsite, special requirements for work within 20 feet of potentially exposed individuals or structures have been established and may be implemented, if necessary. If work areas are within 20 feet of potentially exposed populations or occupied structures, the continuous monitoring locations for VOCs and particulates must reflect the nearest potentially exposed individuals and the location of ventilation system intakes for nearby structures. The use of ECs will be considered to prevent exposures related to the work activities and to control dust and odors.

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

If total particulate concentrations opposite the walls of occupied structures or next to intake vents exceed $150 \mu\text{g}/\text{m}^3$, work activities should be suspended until controls are implemented and are successful in reducing the total particulate concentration to $150 \mu\text{g}/\text{m}^3$ or less at the monitoring point. CAMP data summary tables and data logs will be provided to the NYSDEC and NYSDOH on a daily basis. Exceedances observed in the CAMP will be reported to the NYSDEC and NYSDOH Project Managers within 24 hours and will be included in the daily report. All CAMP data summary tables and data logs will be included in the FER.

5.4.14 Odor, Dust, and Nuisance Control Plan

Dust, odor, and nuisance control will be accomplished by the contractor as described in this section. Invasive development work will be conducted in accordance with dust and odor suppression methodology defined in the RAWP.

5.4.14.1 *Odor Control Plan*

This odor control plan would address emissions of nuisance odors off-site. Specific odor control methods to be used on a routine basis will include application of foam suppressants or tarps over any odorous or VOC source areas. If nuisance odors are identified, work will be halted and the source of odors will be identified and corrected. Work will not resume until nuisance odors are abated. The NYSDEC and NYSDOH will be notified of all odor events and of all other odor complaints about the project. Implementation of all odor controls is the responsibility of the Participant's contractors.

All necessary means will be employed to prevent on- and off-site nuisances. If odors develop and cannot be otherwise controlled, means to eliminate nuisance conditions may include: (a) shrouding open excavations with tarps and other covers; (b) use of odor-suppressing foam; (c) use of chemical odorants in spray or misting systems; and, (d) use of staff to monitor odors in the surrounding neighborhood.

Although not anticipated, where odor nuisances develop during remedial work and cannot be corrected, or where the release of nuisance odors cannot otherwise be avoided because of on-site conditions or close proximity to sensitive receptors, odor control will be achieved by sheltering excavation and handling areas under tented containment structures equipped with appropriate air venting/filtering systems.

5.4.14.2 *Dust Control Plan*

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

- Dust suppression will be achieved through the use of dedicated on-site water spraying for road wetting. Where required, the water source will be equipped with a water cannon, as required, capable of spraying water directly onto off-road areas including excavations and stockpiles.
- Clearing and grubbing of larger sites will be done in stages to limit the area of exposed, un-vegetated soil vulnerable to dust production.
- Gravel will be used on roadways to provide a clean and dust-free road surface.
- On-site roads will be limited in total area to minimize the area required for water spraying.

5.4.14.3 *Other Nuisances*

A plan for rodent control will be developed and used by the remediation contractor during site preparation (including clearing and grubbing) and during remedial work.

A plan for noise control will be developed and used by the remediation contractor during site preparation and remedial work and will conform, at a minimum, to the NYCDEP noise control standards.

6.0 CONTAMINATION TO REMAIN ON SITE

Since remaining contaminated soil, groundwater, and soil vapor will exist beneath the Track 4 areas of the site after the remedy is complete, ECs and ICs are required to protect human health and the environment. These ECs and ICs are described hereafter. Long-term management of EC/ICs and of remaining contamination will be executed under a site-specific SMP that will be developed and included in the FER.

Achievement of a Track 1 cleanup in the footprints of Building C2 and C3 is contingent upon achieving Track 1 SCOs before the COC. If these conditions are not met, the Track 1 areas of the site will likely default to a Track 2 RUR remedy.

ECs will be implemented in the Track 4 area to protect public health and the environment by appropriately managing remaining contamination. The site will have two primary EC systems: 1) a site-wide composite cover system; and 2) a soil vapor mitigation system consisting of an active SMD system or approved alternative underlying a waterproofing membrane/vapor barrier beneath Building C1.

The FER will provide tables and figures documenting remaining soil contamination. This will include presentation of concentrations exceeding the UU and/or Track 4 site-specific SCOs.

7.0 ENGINEERING AND INSTITUTIONAL CONTROLS

Following completion of the remedy, it is anticipated that the site will achieve a split Track1/Track 2 and Track 4 remedy and the Track 4 area of the site will require ECs and ICs. As part of development, a composite cover system consisting of 12-to-20-inch thick concrete foundation slab and its underlying aggregate subbase and 12-to-24-inch thick foundation walls for Building C1, hardscaped walkways, sidewalks and roadways (Connector Road and Freeman Street) with surface concrete and/or an underlying concrete slab base of varying thickness, and landscaped areas with at least 2 feet of clean soil/fill that meets the lower of the RURR and PGW SCOs or virgin quarry stone will be constructed for the Track 4 areas. An SMD system underlying a waterproofing membrane/vapor barrier or approved alternative will be installed and operated in Building C1 to mitigate soil vapor intrusion of contaminated vapors originating from remaining on-site contamination.

The proposed ECs and ICs are detailed below.

7.1 Engineering Controls

7.1.1 Submembrane Depressurization System

An SMD system will be installed and operated beneath the concrete foundation slab and waterproofing membrane/vapor barrier of Building C1. The SMD system will be designed as an active system and developed in general accordance with the NYSDOH Guidance.

The SMD system will consist of a network of perforated piping installed within an about 8-inch-thick layer of 3/4-inch virgin stone. The collection layer will underlie a continuous waterproofing membrane/vapor barrier that is integrally bonded to the 12-to-20-inch thick concrete building foundation slab. The waterproofing/vapor barrier membranes will be resistant to petroleum-related and chlorinated VOCs and have a minimum thickness of 20 mils. Permanent vapor monitoring points will be installed in the slab to allow for future pressure field extension testing. Riser pipes will be installed to convey the collected vapor to the building roof. The riser pipes will be connected to one or more active vacuum fans. The SMD system will mitigate soil vapor intrusion of contaminated vapors originating from remaining on-site soil or groundwater contamination into the proposed building by directing the vapors collected in the subsurface to an exhaust pipe on the roof. The SMD system, along with its integrated waterproofing membrane/vapor barrier, will be listed as an EC in the FER. A schematic drawing showing the location of the SMD system and the depressurized area is shown on Figure 11.

Soil vapor mitigation design documents and specifications will be developed in coordination with the architect and mechanical engineers of record and will be provided for NYSDEC after the design drawings are filed with and approved by the NYCDOB.

Following installation of the SMD system and foundation slab and receipt of the COC, an SVI evaluation will be performed during the site management phase prior to building occupancy to evaluate the SVI risk for the new building and determine the operational status of the SMD system (active or passive). The SVI

evaluation will be performed during the heating season and once the heating, ventilation, and air conditioning (HVAC) systems are in place and in operation. Following the SVI evaluation and receiving concurrence from the NYSDEC and NYSDOH, the SMD system will be completed as either an active or passive SMD system and once commissioned will act as a permanent EC, regulated and maintained in accordance with the SMP.

If constructed as an active SMD system, it will not be converted to a passive SMD system or otherwise discontinued without written approval by NYSDEC and NYSDOH. A proposal for system conversion or discontinuance, which should be based on confirmatory data that justifies discontinuation, may be submitted by the Participants or future building manager. The SMD system will remain in place and operational until permission to discontinue use is granted in writing by NYSDEC and NYSDOH.

7.1.2 Composite Cover System

Exposure to remaining contaminated soil and groundwater will be prevented by a designed and engineered composite cover system in the Track 4 area. The composite cover system will consist of the following components:

- 12-to-20-inch thick concrete foundation slab and its underlying aggregate subbase and 12-to-24-inch thick foundation walls for Building C1;
- Hardscaped walkways, sidewalks and roadways (Connector Road and Freeman Street) with surface concrete and/or an underlying concrete slab base of varying thickness; and/or
- Landscaped areas with at least 2 feet of clean soil/fill that meets the lower of the RURR and PGW SCOs or virgin quarry stone

The composite cover system layout and relevant details for each cover system type are shown on Figure 12.

The SMP will outline the procedures to be followed if the composite cover system and underlying remaining soil is disturbed after the remedial action is complete. Maintenance of this composite cover system will be described in the SMP.

7.2 **Criteria for Completion of Remediation/Termination of Remedial Systems**

7.2.1 Composite Cover System

The composite cover system is a permanent engineering control, and the quality and integrity of this system will be inspected at defined, regular intervals in perpetuity (absent NYSDEC approval), and following any significant storm and/or flooding events that have the potential to compromise the system. The frequency of inspections will be defined in the SMP.

7.2.2 Soil Vapor Mitigation System

The SMD system with its integrated waterproofing/vapor barrier membrane is a permanent engineering control. If commissioned as an active SMD system, the system will not be deactivated or converted to

passive operation without written approval by both the NYSDEC and NYSDOH. A proposal to convert or deactivate the SMD system may be submitted by the Participants or future building manager based on confirmatory data that justifies such request. The system will remain in place and operational as initially commissioned until permission to discontinue use is granted in writing by the NYSDEC and NYSDOH.

7.3 Institutional Controls

After the remedy is complete, the site will have remaining contamination in the Track 4 area. ECs have been incorporated into the remedy to render the overall site remedy protective of public health and the environment. An SMP will be prepared, and a site-specific EE will be recorded with the New York City Office of the City Register for the Track 4 area to provide an enforceable means for continual and proper management of remaining contamination and protection of public health and the environment in perpetuity or until released in writing by the NYSDEC. The easement will require that the grantor and the grantor's successors and assigns adhere to all ECs and ICs placed on this site. ICs provide restrictions on site usage and mandate operation, maintenance, monitoring and reporting measures for all ECs and ICs. The SMP will describe appropriate methods and procedures to maintain and protect ECs and ICs that are required by the EE. Once the SMP is approved by the NYSDEC, compliance with the SMP will be required by the grantor of the EE and grantor's successors and assigns.

7.3.1 Environmental Easement

An EE, as defined in Article 71, Title 36 of the ECL, is required when remaining contamination is left on-site after the remedy is complete. A split track remedy requires that an EE for the Track 4 area approved by the NYSDEC be filed and recorded with the New York City Office at the City Register before the COC can be issued by the NYSDEC. The recorded EE will be submitted as part of the FER.

The EE renders the Track 4 area of the site a Controlled Property. The easement will list the ECs and ICs required under this remedy to prevent future exposure to remaining contamination, including controlling disturbances of the subsurface remaining contamination and restricting the use of the site to restricted-residential use, commercial or industrial uses only. The ICs are generally subdivided between controls that support ECs and those that place general restrictions on site usage or other requirements. ICs in both of these groups are closely integrated with the SMP, which provides the methods and procedures to be followed to comply with this remedy.

The ICs that support ECs are:

- Compliance with the EE by the grantor and the grantor's successors and adherence of all elements of the SMP is required
- ECs must be operated and maintained as specified in the SMP
- A site cover system consisting of impervious concrete and soil cover must be inspected, certified, and maintained as required in the SMP

- A soil vapor mitigation system consisting of an SMD system with an integrated waterproofing membrane/vapor barrier installed under Building C1 must be inspected, certified, operated, and maintained as required by the SMP
- ECs on the Controlled Property must be inspected and certified at a frequency and in a manner defined in the SMP
- Data and information pertinent to site management must be reported at the frequency and in a manner defined in the SMP
- On-site environmental monitoring and SMD system devices, including but not limited to, SMD system blower(s), must be protected and replaced as necessary for proper functioning in the manner specified in the SMP
- ECs may not be discontinued without an amendment or extinguishment of the EE

Adherence to these ICs is mandated by the EE and will be implemented under the SMP (discussed in the next section). The site restrictions that apply to the site are:

- Vegetable gardens and farming in remaining site soil on the site are prohibited
- Use of groundwater underlying the site is prohibited without treatment rendering it safe for intended purpose
- All future activities on the site that will disturb remaining contaminated material are prohibited unless they are conducted in accordance with the soil management provisions in the SMP
- The site may be used for residential use only, provided the long-term ECs and ICs included in the SMP are employed
- The site may not be used for a higher level of use without an amendment or extinguishment of the EE

Grantor agrees to submit to the NYSDEC a written statement that certifies, under penalty of perjury, that: (1) controls employed at the site are unchanged from the previous certification or that any changes to the controls were approved by the NYSDEC; and, (2) nothing has occurred that impairs the ability of the controls to protect public health and environment or that constitute a violation or failure to comply with the SMP. This certification shall be submitted annually, or at a specified frequency allowed by the NYSDEC. The NYSDEC retains the right to access the site at any time, with reasonable advance notification, to evaluate the continued maintenance of any and all controls.

7.3.2 Site Management Plan

A split Track1/Track 2 and Track 4 cleanup requires an SMP for the Track 4 area. Site management is the last phase of remediation and begins with the approval of the FER and issuance of the COC for the remedy. The SMP is submitted as part of the FER, but will be written in a manner that allows its removal and use as a complete and independent document. Site management continues in perpetuity or until released in

writing by the NYSDEC. The property owner is responsible for all site management responsibilities defined in the EE and performance of the SMP.

The SMP is intended to provide a detailed description of the procedures required to manage remaining contamination left in place at the site following completion of the remedy in accordance with the NYSDEC BCA. This includes: (1) development, implementation, and management of all ECs and ICs; (2) development and implementation of monitoring systems and a Monitoring Plan; (3) development of a plan to operate and maintain any treatment, collection, containment, or recovery systems (including, where appropriate, preparation of an Operation and Maintenance Manual); (4) submittal of Site Management Reports, performance of inspections and certification of results, and demonstration of proper communication of site information to the NYSDEC; and (5) defining criteria for termination of treatment system operation.

To address these needs, the SMP will include four plans: (1) an EC and IC Plan for implementation and management of EC/ICs; (2) a Monitoring Plan for implementation of Site Monitoring; (3) an Operation and Maintenance Plan for implementation of remedial collection, containment, treatment, and recovery systems; and (4) a Site Management Reporting Plan for submittal of data, information, recommendations, and certifications to NYSDEC. The SMP will be prepared in accordance with the requirements in NYSDEC DER-10 and the guidelines provided by the NYSDEC.

Site management activities, reporting, and EC/IC certification will be scheduled on a certification period basis. The certification period will be annual, and the first Periodic Review Report (PRR) will be due for submission to the NYSDEC starting 16 months after issuance of the COC.

No exclusions for handling of remaining contaminated soils will be provided in the SMP. All handling of remaining contaminated soil and non-native historical fill will be subject to provisions contained in the SMP.

7.4 Final Engineering Report

An FER, prepared in accordance with DER-10, will be submitted to NYSDEC after implementation of the remedial action defined in this RAWP. The FER documents that the remedial work required under this RAWP has been completed and performed in compliance with this plan. The FER will provide a comprehensive account of the locations and characteristics of all soil/fill removed from the site including the surveyed map(s) of all sources. The FER will include the following documentation:

1. A written and photographic documentation (via daily field reports) of the completed remedy
2. A description of any deviations from the RAWP
3. An account of fill/soil material exported from the site, including waste types and volumes, waste characterization documentation, facility-signed manifests and scale tickets, facility approvals and other waste disposal documentation
4. An account of materials imported to the site
5. A tabular summary of post-excavation documentation sampling results and other sampling and laboratory analysis completed as part of the remedial action
6. As-built drawings for ECs and commissioning test results (as necessary)

Before approval of an FER and issuance of a COC, all project reports must be submitted in digital form on electronic media (i.e., PDF).

7.5 Certification

The following certification will appear in front of the Executive Summary of the FER. The certification will be signed by the RE, Jason Hayes, who is a PE registered in New York State. This certification will be appropriately signed and stamped. The certification will include the following statements:

I, _____, am currently a registered professional engineer licensed by the State of New York. I had primary direct responsibility for implementation of the remedial program activities, and I certify that the Remedial Action Work Plan was implemented and that all construction activities were completed in substantial conformance with the Department-approved Remedial Action Work Plan.

I certify that the data submitted to the Department with this Final Engineering Report demonstrates that the remediation requirements set forth in the Remedial Action Work Plan and in all applicable statutes and regulations have been or will be achieved in accordance with the time frames, if any, established for the remedy.

I certify that all use restrictions, ICs, ECs, and all operation and maintenance requirements applicable to the site are contained in an EE created and recorded pursuant ECL 71-3605 and that all affected local governments, as defined in ECL 71-3603, have been notified that such easement has been recorded. An SMP has been submitted by the Participants for the continual and proper operation, maintenance, and monitoring of all ECs employed at the site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by the NYSDEC.

I certify that a Site Management Plan has been submitted for the continual and proper operation, maintenance, and monitoring of all Engineering Controls employed at the Site, including the proper maintenance of all remaining monitoring wells, and that such plan has been approved by Department.

I certify that all data generated in support of this report have been submitted in accordance with the Department's electronic data deliverable and have been accepted by the Department.

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

It is a violation of Article 130 of New York State Education Law for any person to alter this document in any way without the express written verification of adoption by any New York State licensed engineer in accordance with Section 7209(2), Article 130, New York State Education Law.

DRAFT

8.0 SCHEDULE

Implementation of the remedy is anticipated to begin in July 2026 and be completed by April 2028. The project team is aiming for a Certificate of Completion by June 2028 to obtain its first temporary certificate of occupancy (TCO) for residential units in August 2028. After completion of remediation, an FER will be submitted to the NYSDEC as detailed in Section 7.4. A remedial action construction schedule is provided below:

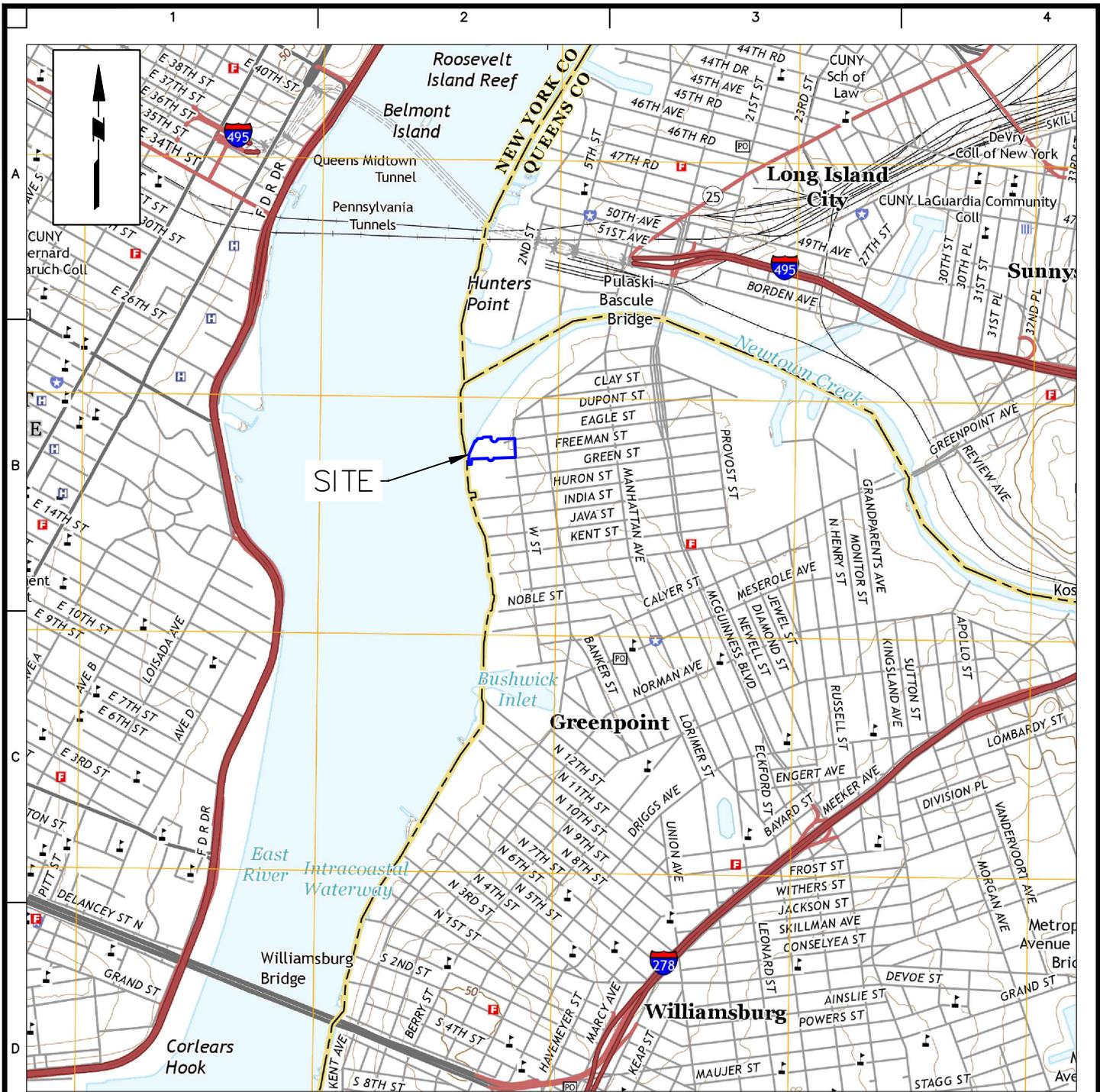
C Block Project Schedule		2025					2026					2027					2028													
Item	Action	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN		
1	Prepare BCP Application and RIR																													
2	Submit Initial BCP Application																													
3	NYSDEC Issues NOIA for BCP Application																													
4	NYSDEC Issues Letter of Completeness																													
5	BCP Application Public Comment Period																													
6	Participant Designation Negotiation Period																													
7	NYSDEC Issues BCP Acceptance Package																													
8	Execute BCA																													
9	NYSDEC Review of Draft RIR and SRIWP																													
10	Implement SRIWP																													
11	Revise and Resubmit RIR																													
12	NYSDEC Approval of RIR																													
13	Preparation and Submission of the RAWP																													
14	NYSDEC/NYSDOH Review of RAWP and Revisions																													
15	Waste Characterization Study and Report (Flex)																													
16	NYSDEC Approval of RAWP and Issuance of Decision Document																													
17	Implement RAWP with Foundation, Connector Road, Freeman Street, and Sitework																													
18	Prepare and Submit Environmental Easement																													
19	Prepare and Submit SMP																													
20	SMP Review and Approval																													
21	Prepare and Submit FER																													
22	FER Review and Approval																													
23	Certificate of Completion																													

Notes:

- 1 This is an estimated schedule; all items are subject to change, based on agency review.
- 2 BCP = Brownfield Cleanup Program
- 3 NYSDEC = New York State Department of Environmental Conservation
- 4 BCA = Brownfield Cleanup Agreement
- 5 NOIA = Notice of Incomplete Application
- 6 NYSDOH = New York State Department of Health
- 7 RIR = Remedial Investigation Report
- 8 SRIWP = Supplemental Remedial Investigation Report
- 9 RAWP = Remedial Action Work Plan
- 10 FER = Final Engineering Report
- 11 SMP = Site Management Plan
- 12 COC = Certificate of Completion

 Anticipated Schedule



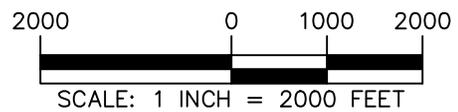


NOTES

1. BASE MAP SOURCE: UNITED STATES GEOLOGICAL SURVEY (USGS) (2016) 7.5-MINUTE SERIES TOPOGRAPHICAL MAPS, BROOKLYN, NEW YORK, QUADRANGLE.
2. NORTH ARROW SHOWS TRUE NORTH.

LEGEND

— APPROXIMATE SITE BOUNDARY



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BLOCK NO. 2502, p/o LOT Nos.
1 & 5, AND BLOCK NO. 2510, p/o LOT
Nos. 1 & 100

KINGS

NEW YORK

Figure Title

**SITE LOCATION
MAP**

Project No.

170229030

Date

05/13/2025

Drawn By

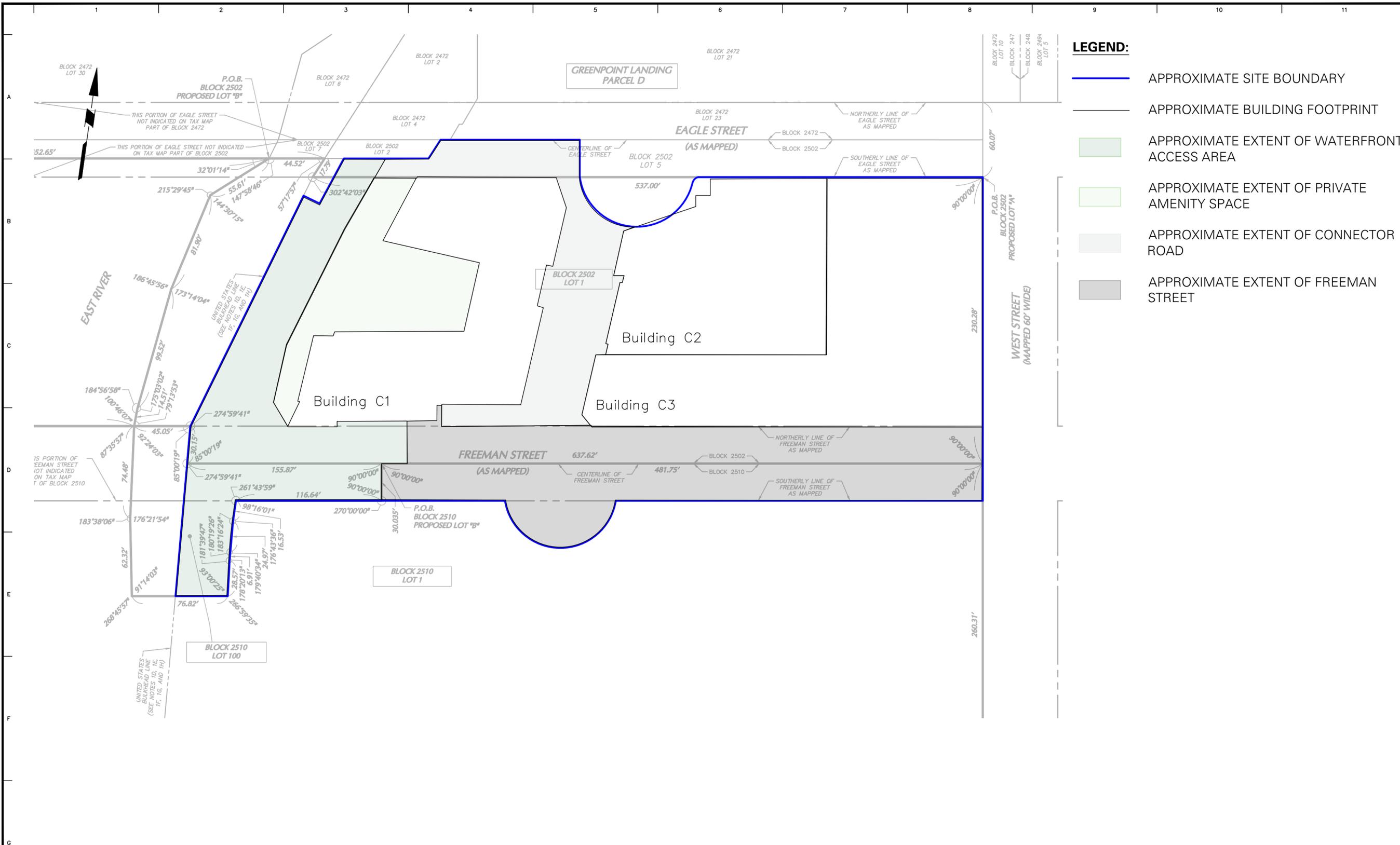
VK

Checked By

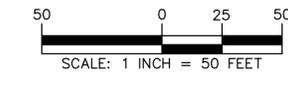
GW

Figure

1



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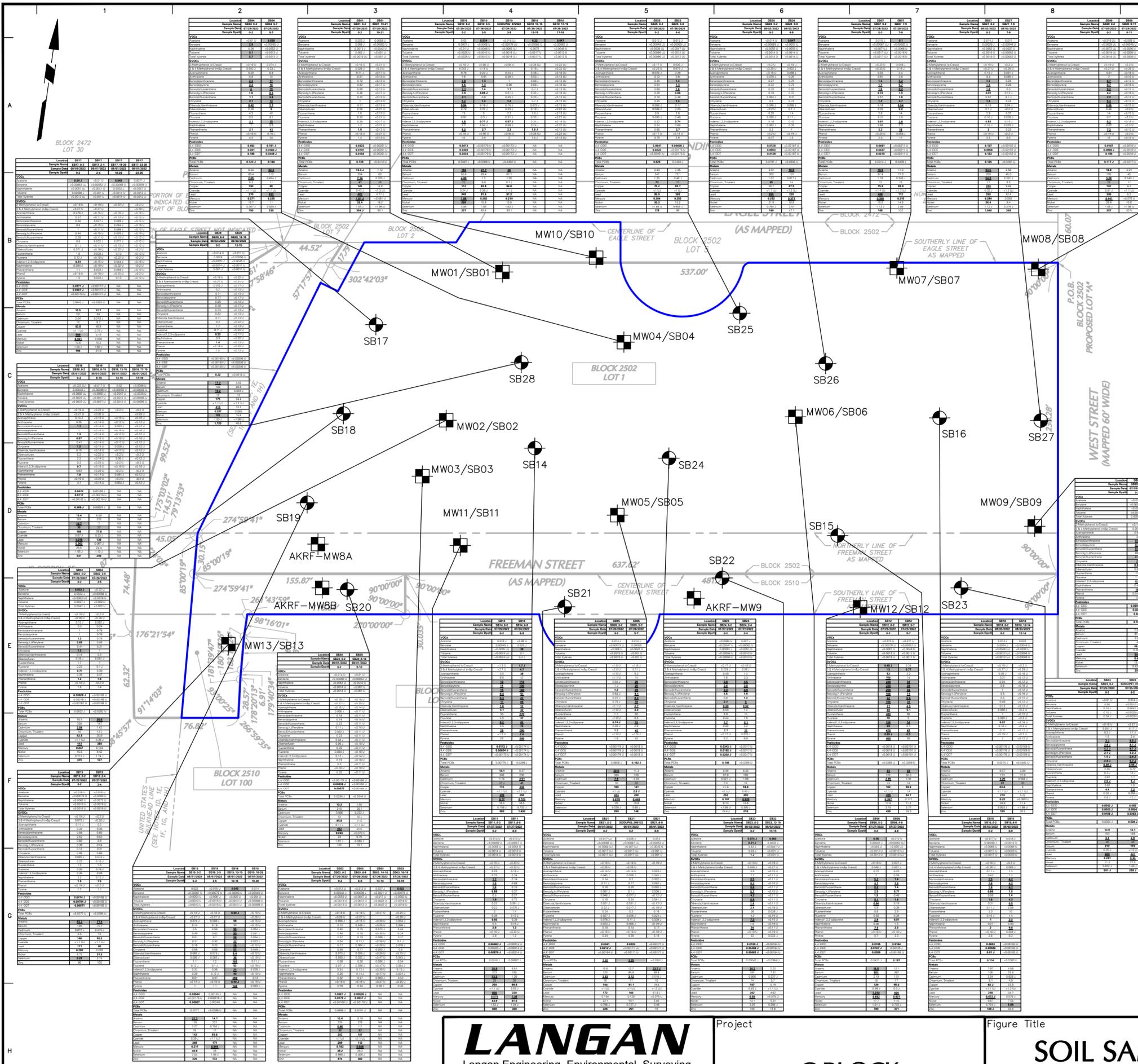


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Figure Title
SITE PLAN

Project No. 170229030	2
Date 05/13/2025	
Drawn By VK	
Checked By GW	



LEGEND:

- APPROXIMATE SITE BOUNDARY
- SB16 APPROXIMATE LOCATION OF SOIL BORING
- MW01/SB01 APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL

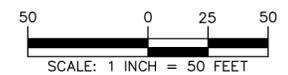
Analyte	NYSDEC Part 375 Unrestricted Use SCOs	NYSDEC Part 375 Protection of Groundwater SCOs	NYSDEC Part 375 Restricted Use Restricted-Residential SCOs
VOCs			
Acetone	0.03	0.03	100
Benzene	0.06	0.06	3.7
Naphthalene	12	12	100
Toluene	0.7	0.7	100
Total Xylenes	0.26	1.2	100
SVOCs			
2-Methylphenol (o-Cresol)	0.33	0.33	100
3 & 4 Methylphenol (m&p Cresol)	0.33	0.33	100
Acenaphthene	20	98	100
Anthracene	100	1000	100
Benzo(a)anthracene	1	1	1.4
Benzo(a)pyrene	1	22	1
Benzo(b)fluoranthene	1	2.1	1.4
Benzo(g,h,i)Perylene	0.64	1000	4.9
Benzo(k)fluoranthene	0.8	2	4.9
Chrysene	1	1	4.9
Dibenz(a,h)anthracene	0.33	1000	0.33
Dibenzofuran	2.1	110	18
Fluoranthene	85	1000	100
Fluorene	30	386	100
Indeno(1,2,3-cd)pyrene	0.5	6.6	1.4
Naphthalene	12	12	100
Phenanthrene	1.1	1000	4.9
Phenol	0.33	0.33	100
Pyrene	64	1000	100
Pesticides			
4,4'-DDD	0.0033	14	5
4,4'-DDE	0.0033	9.3	3.4
4,4'-DDT	0.0033	135	9.8
PCBs			
Total PCBs	0.1	3.2	1
Metals			
Arsenic	13	16	16
Barium	410	820	410
Cadmium	2.5	7.5	2.5
Chromium, Trivalent	30	19	110
Copper	50	1720	280
Cyanide	2.3	40	13
Lead	63	450	400
Mercury	0.18	0.73	0.3
Nickel	30	130	320
Selenium	3.9	4	110
Zinc	109	2480	6600

Exceedance Summary:

- 10 - Result exceeds Unrestricted Use SCOs
- 10 - Result exceeds Protection of Groundwater SCOs
- 10 - Result exceeds Restricted Use Restricted-Residential SCOs

- NOTES:**
- BASE MAP IS TAKEN FROM "FINAL SURVEY", FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
 - ALL LOCATIONS ARE APPROXIMATE.
 - SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 NEW YORK CODES RULES AND REGULATIONS (NYCRR) PART 375 UNRESTRICTED USE (UU), RESTRICTED USE RESTRICTED-RESIDENTIAL (RURR), AND PROTECTION OF GROUNDWATER (PGW) SOIL CLEANUP OBJECTIVES (SCO).
 - J = THE ANALYTE WAS DETECTED ABOVE THE METHOD DETECTION LIMIT, BUT BELOW THE REPORTING LIMIT (RL); THEREFORE, RESULT IS AN ESTIMATE.
 - UJ = THE ANALYTE WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE RL; HOWEVER, THE REPORTED RL IS APPROXIMATE AND MAY BE INACCURATE OR IMPRECISE.
 - U = THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE RL. THE VALUE SHOWN IN THE TABLE IS THE RL.
 - MG/KG = MILLIGRAMS PER KILOGRAM.

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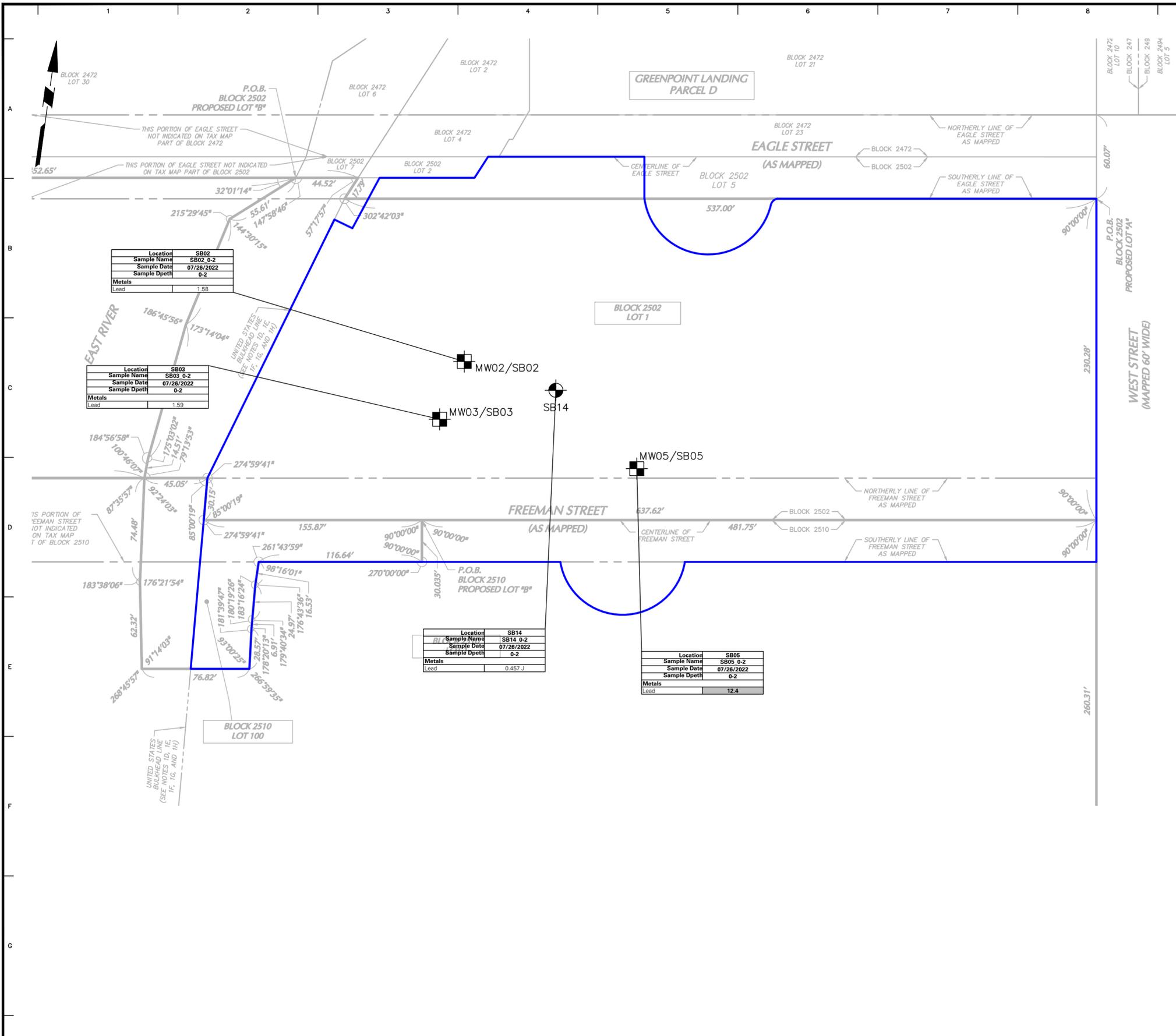


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 KINGS NEW YORK

Figure Title
SOIL SAMPLE ANALYTICAL RESULTS MAP

Project No.	170229030	Figure 3A
Date	05/13/2025	
Drawn By	VK	
Checked By	GW	



LEGEND:

- APPROXIMATE SITE BOUNDARY
- SB16 APPROXIMATE LOCATION OF SOIL BORING
- MW01/SB01 APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL

Analyte	RCRA Characteristics of Hazardous Waste
Metals	
Lead	5

Exceedance Summary:

10 - Result exceeds the RCRA Maximum Concentration of Contaminants for the Toxicity Characteristic

- NOTES:**
- BASE MAP IS TAKEN FROM "FINAL SURVEY", FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
 - ALL LOCATIONS ARE APPROXIMATE.
 - SOIL SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE TITLE 6 NEW YORK CODES RULES AND REGULATIONS (NYCRR) PART 371.3 AND 40 CFR 261 SUBPART C AND TABLE 1 OF 40 CFR 261.24 - ENVIRONMENTAL PROTECTION AGENCY (EPA) RESOURCE CONSERVATION AND RECOVERY ACT (RCRA) CHARACTERISTIC OF HAZARDOUS WASTE.
 - J = THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.

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Figure Title
SOIL SAMPLE ANALYTICAL RESULTS MAP - TCLP

Project No. 170229030	3B
Date 05/13/2025	
Drawn By VK	
Checked By GW	

LEGEND:

— APPROXIMATE SITE BOUNDARY

□ APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL

MW01/SB01

Analyte	NYSDEC SGVs
SVOCs - Dissolved	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Phenol	1
SVOCs - Total	
Benzo(a)anthracene	0.002
Benzo(a)pyrene	0
Benzo(b)fluoranthene	0.002
Benzo(k)fluoranthene	0.002
Chrysene	0.002
Indeno(1,2,3-cd)pyrene	0.002
Phenol	1
Metals - Dissolved	
Iron	300
Lead	25
Magnesium	35000
Manganese	300
Sodium	20000
Thallium	0.5
Metals - Total	
Iron	300
Lead	25
Magnesium	35000
Manganese	300
Sodium	20000
Thallium	0.5
PFAS	
Perfluorooctanesulfonic Acid (PFOS)	0.0027
Perfluorooctanoic Acid (PFOA)	0.0067

Exceedance Summary:
 10 - Result exceeds NYSDEC SGVs

- NOTES:**
- BASE MAP IS TAKEN FROM 'FINAL SURVEY', FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
 - ALL LOCATIONS ARE APPROXIMATE.
 - GROUNDWATER SAMPLE ANALYTICAL RESULTS ARE COMPARED TO THE NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION (NYSDEC) TITLE 6 NEW YORK CODES RULES AND REGULATIONS (NYCRR) PART 703.5 AND THE NYSDEC TECHNICAL AND OPERATION GUIDANCE SERIES (TOGS) 1.1.1 AMBIENT WATER QUALITY STANDARDS AND GUIDANCE VALUES FOR CLASS GA WATER AND PUBLISHED ADDENDA (HEREIN COLLECTIVELY REFERENCED AS "NYSDEC SGVS").
 - J = THE ANALYTE WAS POSITIVELY IDENTIFIED AND THE ASSOCIATED NUMERICAL VALUE IS THE APPROXIMATE CONCENTRATION OF THE ANALYTE IN THE SAMPLE.
 - UJ = THE ANALYTE WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE REPORTING LIMIT (RL); HOWEVER, THE REPORTED RL IS APPROXIMATE AND MAY BE INACCURATE OR IMPRECISE.
 - U = THE ANALYTE WAS ANALYZED FOR, BUT WAS NOT DETECTED AT A LEVEL GREATER THAN OR EQUAL TO THE LEVEL OF THE RL OR THE SAMPLE CONCENTRATION FOR RESULTS IMPACTED BY BLANK CONTAMINATION.



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50 0 25 50
 SCALE: 1 INCH = 50 FEET

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Figure Title
GROUNDWATER SAMPLE ANALYTICAL RESULTS MAP

Project No.
170229030

Date
05/13/2025

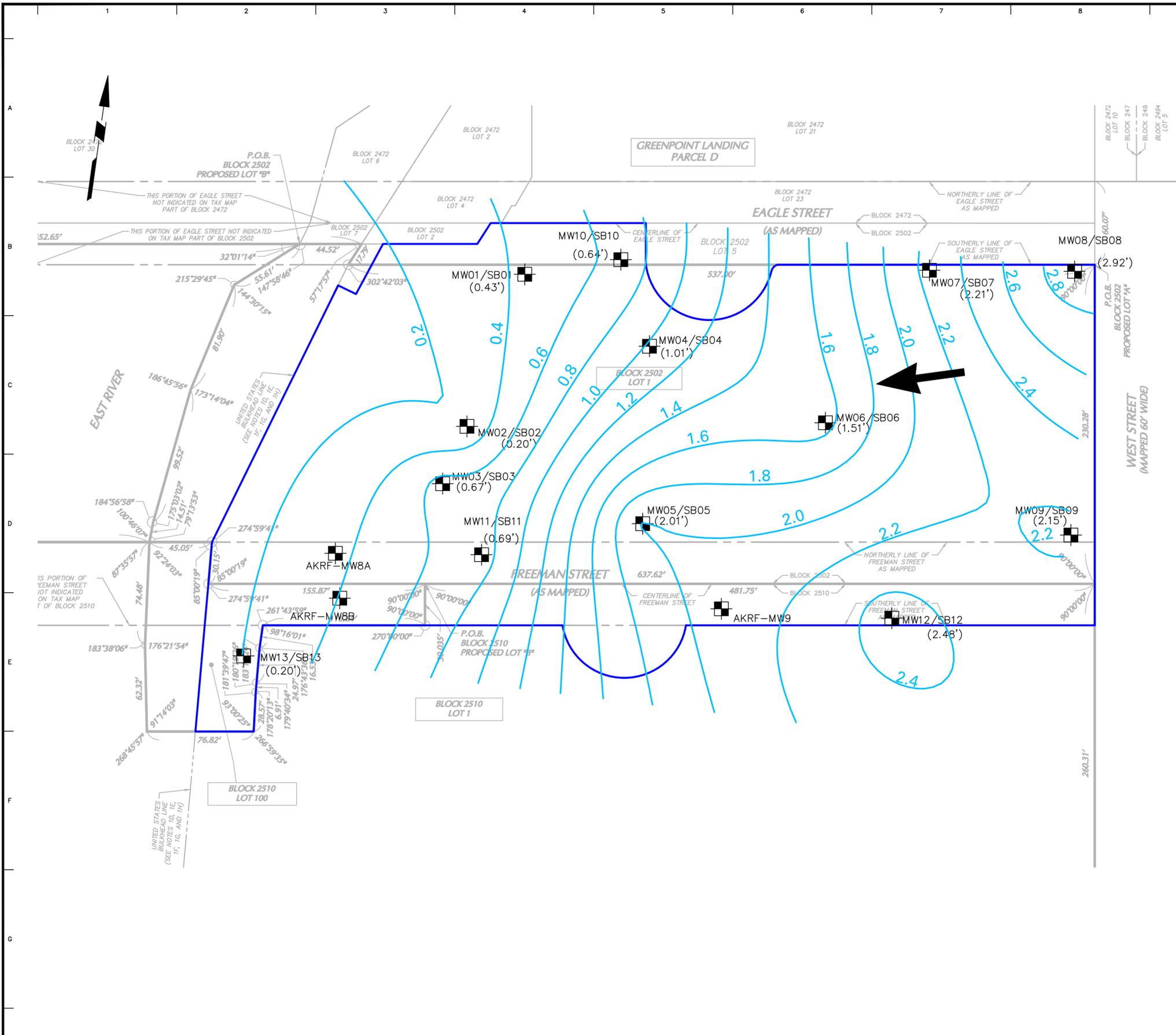
Drawn By
VK

Checked By
GW

Figure
4

LEGEND:

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE LOCATION OF SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL (GROUNDWATER ELEVATION)
- 2.6 GROUNDWATER CONTOUR ELEVATION
- ← INFERRED GROUNDWATER FLOW DIRECTION



- NOTES:**
1. BASE MAP IS TAKEN FROM "FINAL SURVEY", FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
 2. ALL SAMPLE LOCATIONS ARE APPROXIMATE.
 3. ELEVATIONS SHOWN IN THE FIGURE ARE BASED ON NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), WHICH IS APPROXIMATELY 1.1 FEET ABOVE MEAN SEA LEVEL DATUM AT SANDY HOOK, NEW JERSEY AS DEFINED BY THE UNITED STATES GEOLOGIC SURVEY (USGS NGVD 1929).
 4. MONITORING WELL TOP OF CASING ELEVATIONS WERE SURVEYED BY LANGAN ON AUGUST 05, 2022.
 5. GROUNDWATER ELEVATIONS ARE BASED ON A SYNOPSIS GROUNDWATER GAUGING EVENT PERFORMED BY LANGAN ON AUGUST 05, 2022.
 6. GROUNDWATER CONTOUR INTERVAL IS 0.4 FEET.

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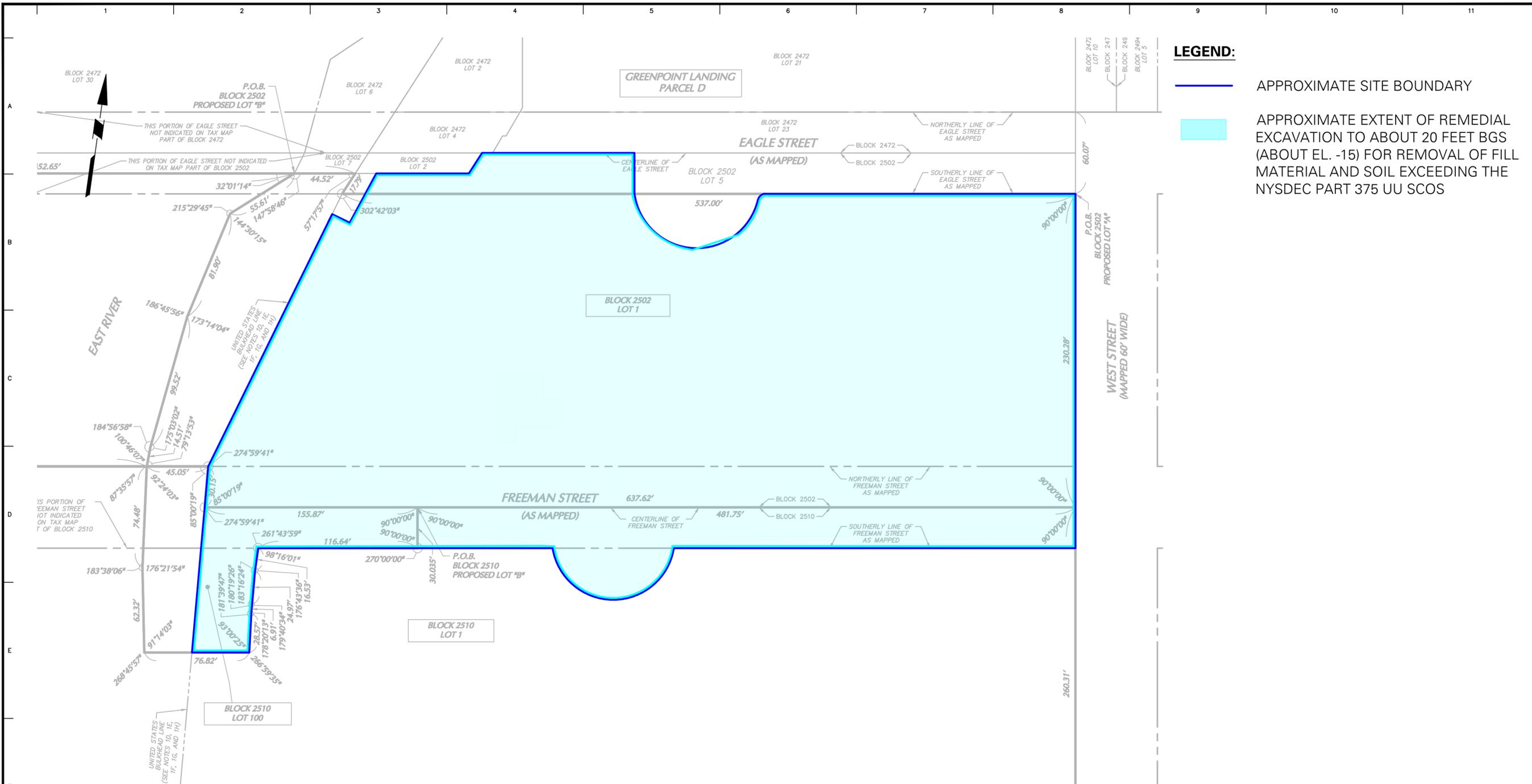


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Figure Title
**GROUNDWATER
 ELEVATION
 CONTOUR MAP**

Project No. 170229030	6
Date 05/13/2025	
Drawn By VK	
Checked By GW	



NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY", FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. THE DEPTH OF EXCAVATION REQUIRED TO MEET A TRACK 1 REMEDY WAS BASED ON THE DEPTH OF NON-NATIVE HISTORICAL FILL AND THE ANALYTICAL RESULTS DERIVED FROM THE 2022 REMEDIAL INVESTIGATION AND THE 2026 SUPPLEMENTAL REMEDIAL INVESTIGATION.
3. BGS = BELOW GRADE SURFACE
4. NYSDEC PART 375 = NEW YORK STATE DEPARTMENT OF CONSERVATION TITLE 6 OF THE NEW YORK CODES, RULES AND REGULATIONS PART 375-1, 3.8, 6.8
5. UU = UNRESTRICTED USE
6. SCO = SOIL CLEANUP OBJECTIVE

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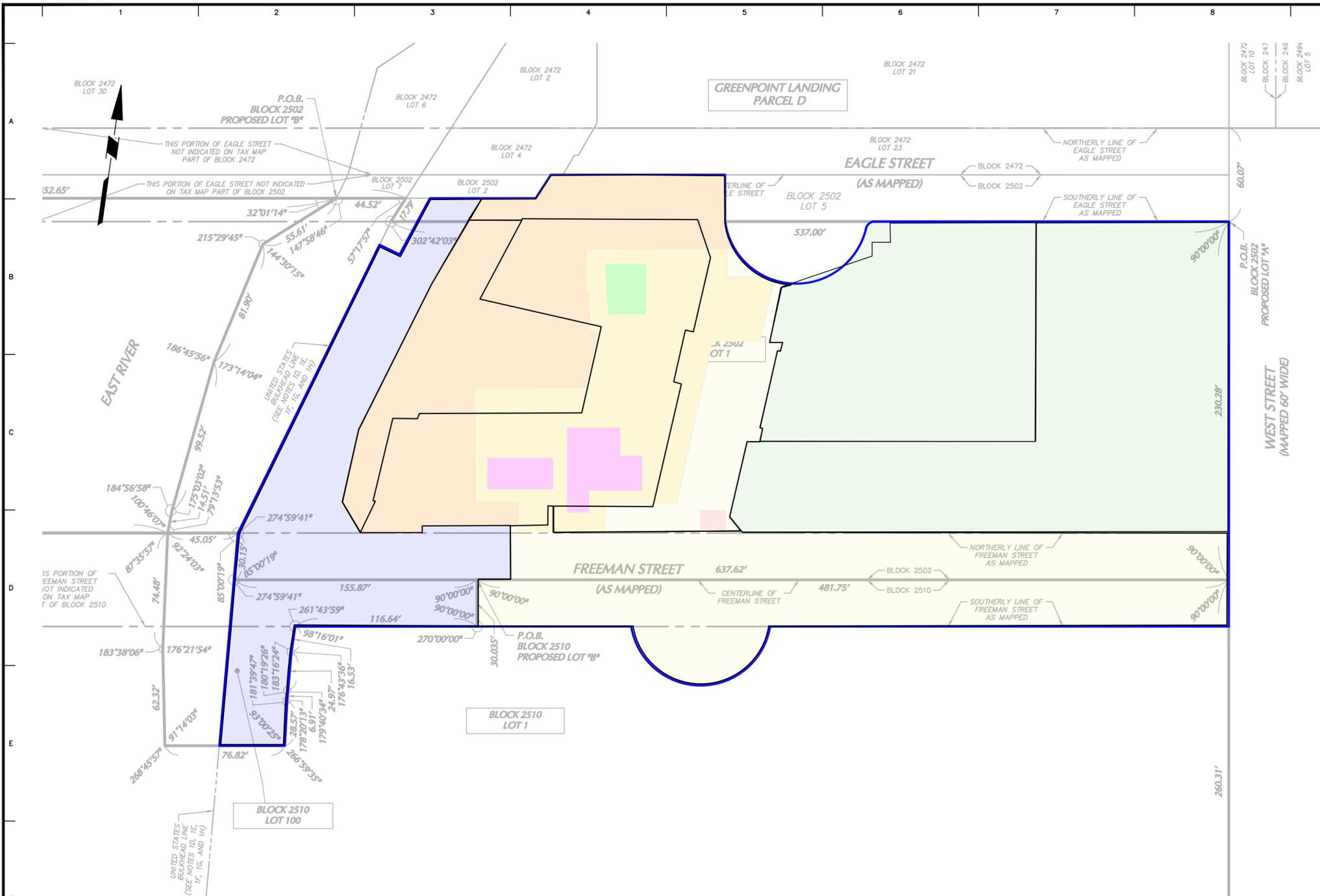


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Figure Title
**ALTERNATIVE I:
 TRACK 1 CLEANUP
 PLAN**

Project No.	170229030	Figure 7
Date	05/13/2025	
Drawn By	VK	
Checked By	GW	

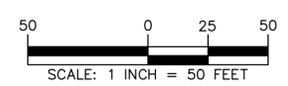


- LEGEND:**
- APPROXIMATE SITE BOUNDARY
 - APPROXIMATE EXTENT OF REMEDIAL EXCAVATION TO ABOUT 15 FEET BGS (ABOUT EL. -5) TO REMOVE FILL MATERIAL AND SOIL EXCEEDING THE NYSDEC PART 375 UU SCOS
 - APPROXIMATE EXTENT OF LOCALIZED EXCAVATION UP TO A MAXIMUM OF ABOUT 6 FEET BGS (ABOUT EL. 2)
 - APPROXIMATE EXTENT OF REMEDIAL EXCAVATION UP TO 2 FEET BGS FOR COMPOSITE COVER SYSTEM INSTALLATION
 - APPROXIMATE EXTENT OF REMEDIAL EXCAVATION TO AT LEAST 2 FEET BGS FOR REMOVAL OF LEAD-IMPACTED SOIL HOTSPOT (DELINEATION NECESSARY, ADDITIONAL EXCAVATION MAY BE REQUIRED)
 - APPROXIMATE EXTENT OF REMEDIAL EXCAVATION TO BETWEEN ABOUT 6 AND 8 FEET BGS (ABOUT EL. 3.5 TO 2)
 - APPROXIMATE EXTENT OF LOCALIZED REMEDIAL EXCAVATION TO ABOUT 14 FEET BGS (ABOUT EL. -5)
 - APPROXIMATE EXTENT OF LOCALIZED REMEDIAL EXCAVATION TO ABOUT 17 FEET BGS (ABOUT EL. -7)
 - APPROXIMATE EXTENT OF NO REMEDIAL EXCAVATION OF BELOW EXISTING GROUND SURFACE (AREA OF FILL ONLY)

NOTES:

1. BASE MAP IS TAKEN FROM "FINAL SURVEY", FIGURE FS103, PREPARED BY LANGAN, DATED FEBRUARY 26, 2025.
2. THE VAPOR MITIGATION SYSTEM PLAN IS SHOWN IN FIGURE 11.
3. THE COMPOSITE COVER SYSTEM DETAILS ARE SHOWN IN FIGURE 12.
4. IN THE EVENT THAT A TRACK 1 REMEDY IS DEEMED INFEASIBLE BASED ON REQUIRED EXCAVATION DEPTH, A TRACK 2 REMEDY WILL BE PROPOSED IN THE C2 AND C3 BUILDING FOOTPRINT.
5. BGS = BELOW GRADE SURFACE
6. NYSDEC PART 375 = NEW YORK STATE DEPARTMENT OF CONSERVATION TITLE 6 OF THE NEW YORK CODES, RULES AND REGULATIONS PART 375-1, 3.8, 6.8
7. UU = UNRESTRICTED USE
8. SCO = SOIL CLEANUP OBJECTIVE

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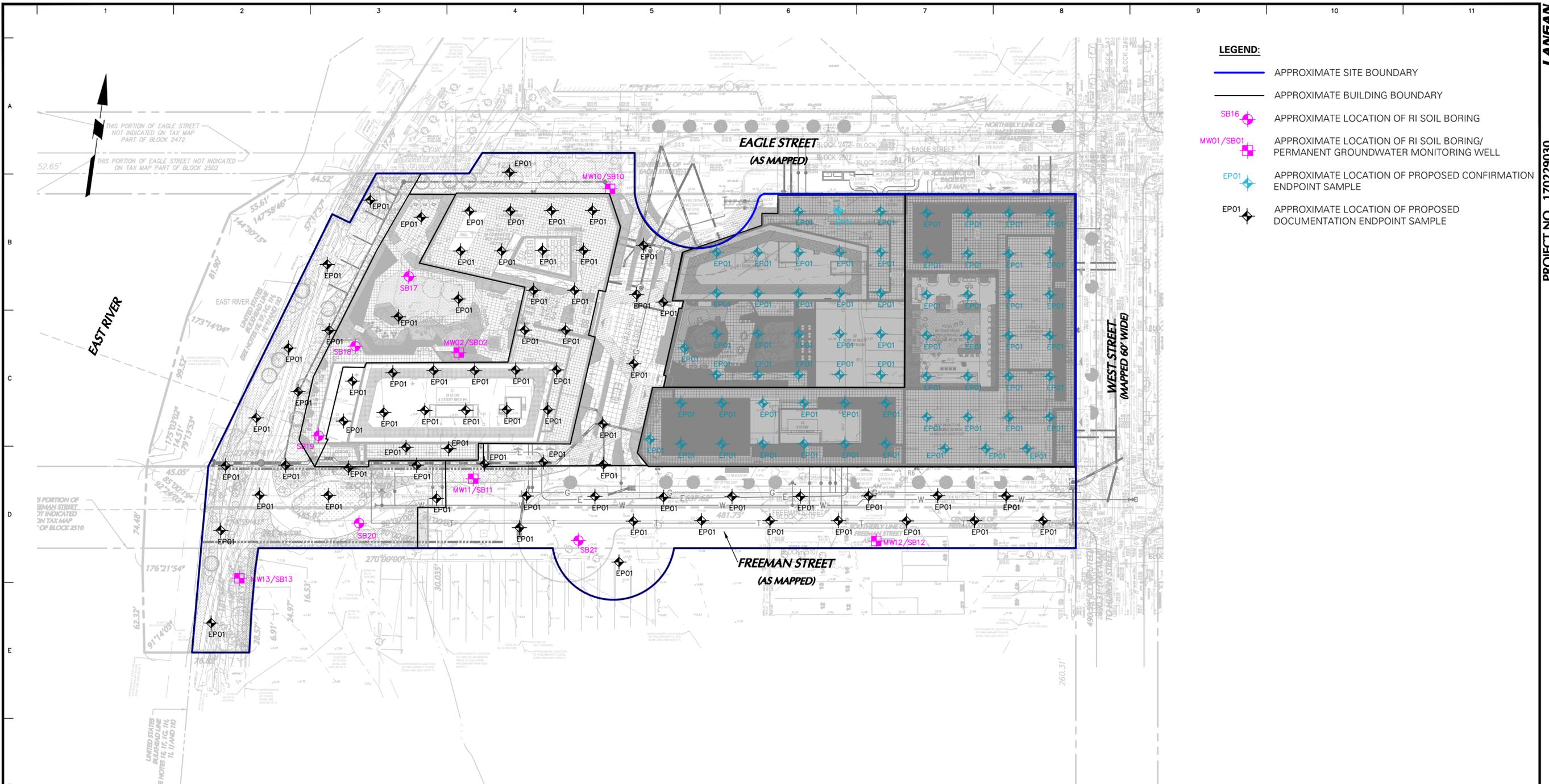


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Figure Title
**ALTERNATIVE II:
 TRACK 1/TRACK 2 AND
 TRACK 4 CLEANUP
 PLAN**

Project No. 170229030	8
Date 05/13/2025	
Drawn By VK	
Checked By GW	

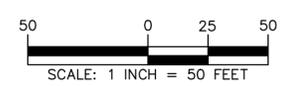


LEGEND:

	APPROXIMATE SITE BOUNDARY
	APPROXIMATE BUILDING BOUNDARY
	SB16 APPROXIMATE LOCATION OF RI SOIL BORING
	MW1/SB01 APPROXIMATE LOCATION OF RI SOIL BORING/ PERMANENT GROUNDWATER MONITORING WELL
	EP01 APPROXIMATE LOCATION OF PROPOSED CONFIRMATION ENDPOINT SAMPLE
	EP01 APPROXIMATE LOCATION OF PROPOSED DOCUMENTATION ENDPOINT SAMPLE

- NOTES:**
1. BASE MAP IS TAKEN FROM "TOPOGRAPHIC, BOUNDARY, AND UTILITY SURVEY", PREPARED BY LANGAN, DATED SEPTEMBER 05, 2025, AND FROM "SITE PLAN", A-001.00, PREPARED BY HANDEL ARCHITECTS, DATED OCTOBER 17, 2025.
 2. ENDPOINTS WERE ASSIGNED EVERY 900 SQUARE FEET (SF) IN BUILDING FOOTPRINTS, EVERY 2000 SF IN THE WATERFRONT AREAS, AND EVERY 1500SF IN AREAS WHERE FUTURE EXCAVATION IS MORE LIKELY TO TAKE PLACE.
 3. SIDEWALL SAMPLES WILL NOT BE COLLECTED FROM WITHIN THE BUILDING FOOTPRINT BECAUSE SOE MEASURES WILL PRECLUDE ACCESS TO SOIL SIDEWALLS.
 4. TOTAL ENDPOINTS IN C1 = 26
 5. TOTAL ENDPOINTS IN C2 = 24
 6. TOTAL ENDPOINTS IN C3 = 40
 7. TOTAL ENDPOINTS IN LANDSCAPING HARDSCAPING AREAS = 45
 8. RI BORINGS WITH UNDISTURBED 0-2 FEET SAMPLING INTERVAL TO BE USED AS ENDPOINTS = 10
 9. IF ANY OF THE RI 0-2 FOOT SAMPLES ARE DISTURBED DURING CONSTRUCTION, ADDITIONAL ENDPOINT SAMPLES WILL BE COLLECTED.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.



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Project
C BLOCK
 BLOCK NO. 2502, p/o LOT NOs.
 1 & 5, AND BLOCK NO. 2510, p/o LOT
 NOs. 1 & 100
 KINGS NEW YORK

Figure Title
**PROPOSED ENDPOINT
 SAMPLE LOCATION
 MAP**

Project No. 170229030	9
Date 01/14/2026	
Drawn By VK	
Checked By GW	



Legend

Truck Routes	Restricted Routes
Local Truck Route Trucks with an origin or destination for the purpose of delivery, loading or servicing within the respective Borough, shall only operate on designated local routes, except that an operator may operate on a non-designated street for the purpose of arriving at their destination. This shall be accomplished by leaving a designated truck route at the intersection that is nearest to their destination, proceeding by the most direct route, and then returning to the nearest designated truck route by the most direct route. If the operator has additional destinations in the same general area, they may proceed by the most direct route to their next destination without returning to a designated truck route, provided that the operator's next destination does not require that they cross a designated truck route.	No Commercial Vehicles
Through Truck Route Trucks having neither an origin nor a destination within the respective Borough shall restrict the operation of such vehicles to those street segments designated as Through Truck Routes.	Hazards
Through Truck Route on Expressway	Alert: see additional information
53 FT Trailer Exception	Low Vertical Clearance (14 feet and under)
Connecting Road Outside NYC	Navigation / Landmarks
	Highway Exit
	Major Highway
	Industrial Business Zone
	Parks and Open Spaces
	Limited Truck Zone

Legend

- Approximate Site Boundary
- Proposed Truck Route

Notes:
 1. Basemap taken from "2022 New York City Truck Route Map", provided by the New York City Department of Transportation.
 2. Site entrance location may change based on construction logistics.
 3. Aerial imagery provided through Langan's subscription to NearMap dated 07/03/2025.

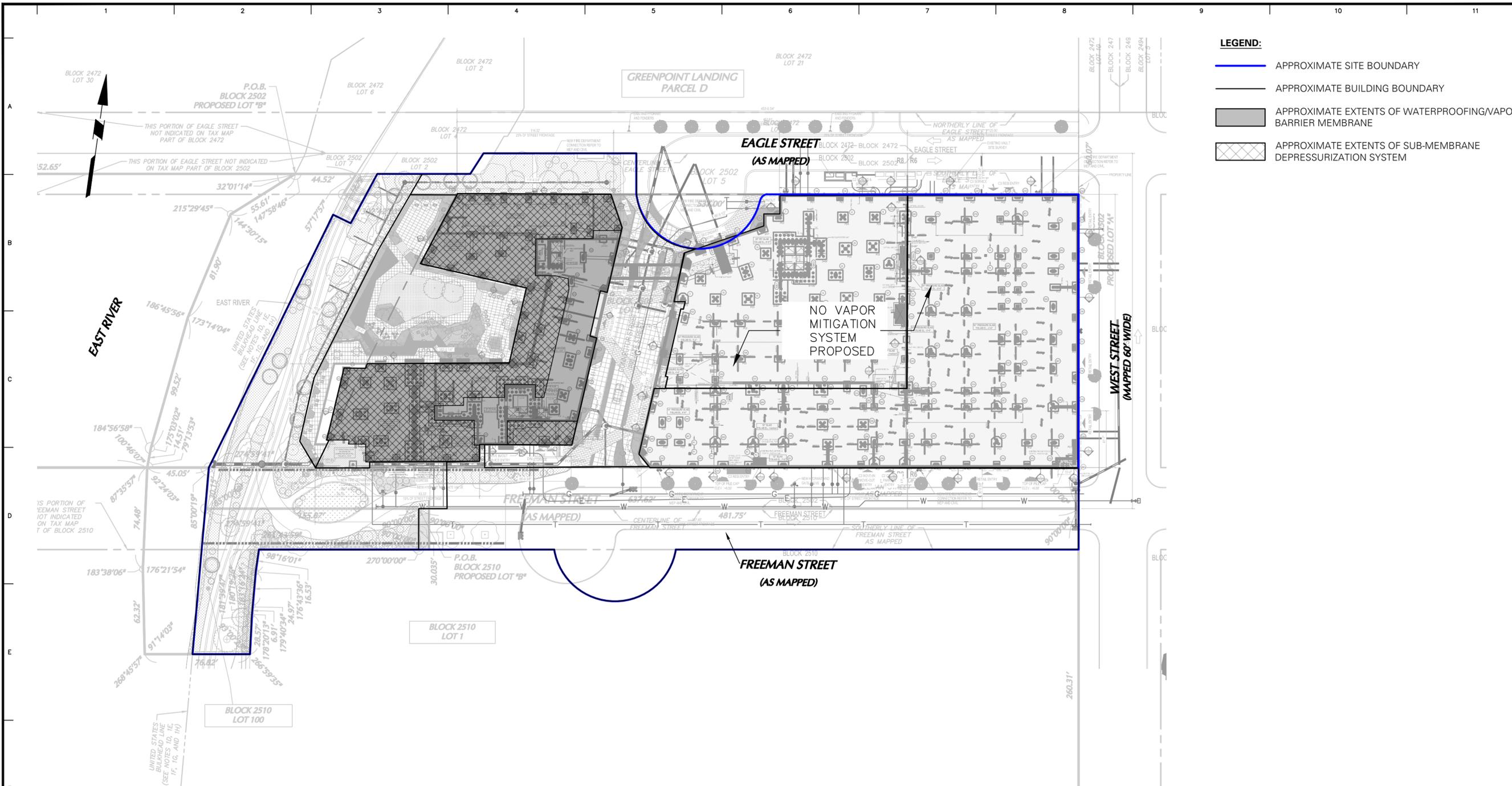
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Project
C BLOCK
 BLOCK NO. 2502, p/o LOT NOs.
 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100
 BROOKLYN NEW YORK

Figure Title
TRUCK ROUTE MAP

Project No.	170229030	Figure No.	10
Date	2/19/2026		
Scale	AS SHOWN		
Drawn By	IHB		



LEGEND:

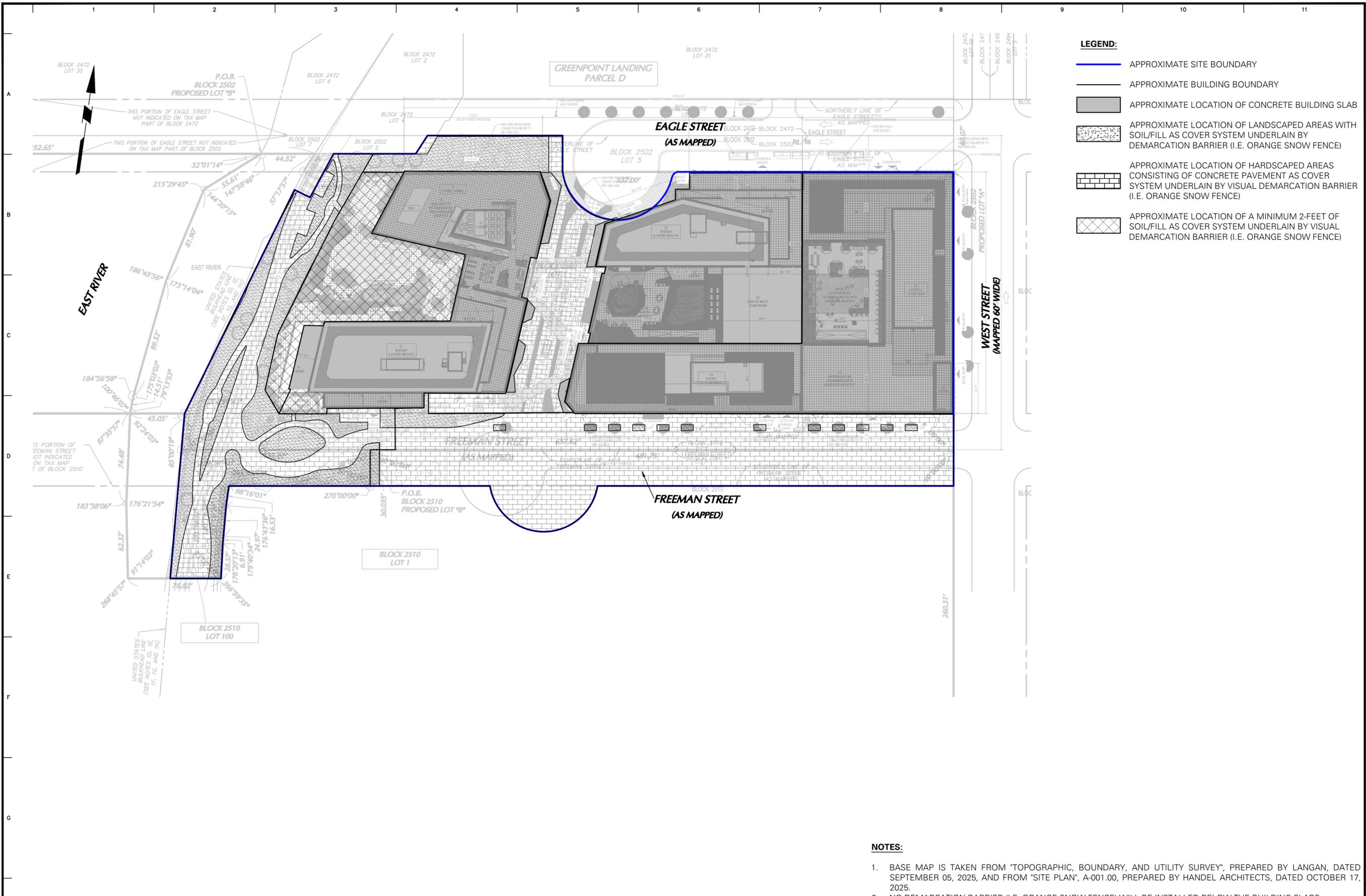
	APPROXIMATE SITE BOUNDARY
	APPROXIMATE BUILDING BOUNDARY
	APPROXIMATE EXTENTS OF WATERPROOFING/VAPOR BARRIER MEMBRANE
	APPROXIMATE EXTENTS OF SUB-MEMBRANE DEPRESSURIZATION SYSTEM

- NOTES:**
1. SURVEY BASE MAP IS REFERENCED FROM "TOPOGRAPHIC, BOUNDARY, AND UTILITY SURVEY", PREPARED BY LANGAN, DATED SEPTEMBER 05, 2025.
 2. BASE MAP REFERENCED FROM "SITE PLAN", FIGURE A-001.00, PREPARED BY HANDEL ARCHITECTS, DATED JANUARY 30, 2026, FROM "UTILITY PLAN", FIGURE C-400.00, PREPARED BY LANGAN, DATED JANUARY 30, 2026, FROM "FOUNDATION PLAN (C1)", FIGURE FO-100.00, PREPARED BY WSP BUILDING STRUCTURES, DATED JANUARY 30, 2026, AND FROM "CELLAR PLAN (FOUNDATION)(C2)", FIGURE FO-100.00, PREPARED BY WSP BUILDING STRUCTURES, DATED DECEMBER 08, 2025.
 3. ALL LOCATIONS ARE APPROXIMATE

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.

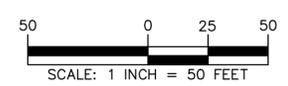


<p>LANGAN Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. 368 Ninth Avenue, 8th Floor New York, NY 10001 T: 212.479.5400 F: 212.479.5444 www.langan.com</p>	Project	Figure Title	Project No.	Figure
		C BLOCK	VAPOR MITIGATION SYSTEM PLAN	
	BLOCK NO. 2502, p/o LOT NOs. 1 & 5, AND BLOCK NO. 2510, p/o LOT NOs. 1 & 100		Date	
			01/14/2026	
			Drawn By	11
			VK	
			Checked By	
			GW	



- NOTES:**
- BASE MAP IS TAKEN FROM "TOPOGRAPHIC, BOUNDARY, AND UTILITY SURVEY", PREPARED BY LANGAN, DATED SEPTEMBER 05, 2025, AND FROM "SITE PLAN", A-001.00, PREPARED BY HANDEL ARCHITECTS, DATED OCTOBER 17, 2025.
 - NO DEMARCATION BARRIER (I.E. ORANGE SNOW FENCE) WILL BE INSTALLED BELOW THE BUILDING SLABS.

WARNING: IT IS A VIOLATION OF THE NYS EDUCATION LAW ARTICLE 145 FOR ANY PERSON, UNLESS HE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, LAND SURVEYOR OR GEOLOGIST, TO ALTER THIS ITEM IN ANY WAY.



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Project
C BLOCK
BLOCK NO. 2502, p/o LOT NOs.
1 & 5, AND BLOCK NO. 2510, p/o LOT
NOs. 1 & 100
KINGS NEW YORK

Figure Title
**COMPOSITE COVER
SYSTEM PLAN**

Project No. 170229030	12
Date 01/14/2026	
Drawn By VK	
Checked By GW	

**Table 1
Remedial Action Work Plan
Track 1 Soil Cleanup Objectives**

**C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030**

VOC (mg/kg)	UU SCOs
1,1,1-Trichloroethane	0.68
1,1-Dichloroethane	0.27
1,1-Dichloroethene	0.24
1,2,4-Trimethylbenzene	5.9
1,2-Dichlorobenzene	1.1
1,2-Dichloroethane	0.02
1,3,5-Trimethylbenzene (Mesitylene)	3.1
1,3-Dichlorobenzene	2.6
1,4-Dichlorobenzene	1.8
Acetone	0.03
Aniline (Phenylamine, Aminobenzene)	0.04
Benzene	0.06
Carbon Tetrachloride	0.76
Chlorobenzene	4.5
Chloroform	0.37
Cis-1,2-Dichloroethene	0.19
Ethylbenzene	1
Hexachlorobenzene	0.33
Methyl Ethyl Ketone (2-Butanone)	0.1
Methylene Chloride	0.05
n-Butylbenzene	18
Nitrobenzene	0.08
n-Propylbenzene	5
Sec-Butylbenzene	25
T-Butylbenzene	11
Tert-Butyl Methyl Ether (MTBE)	0.1
Tetrachloroethene (PCE)	1.3
Toluene	0.7
Total Xylenes	0.26
Trans-1,2-Dichloroethene	0.19
Trichloroethene (TCE)	0.47
Vinyl Chloride	0.03

Metals (mg/kg)	UU SCOs
Arsenic	13
Barium	410
Beryllium	4.4
Cadmium	2.5
Chromium, Hexavalent	1
Chromium, Trivalent	30
Copper	50
Cyanide	2.3
Lead	63
Manganese	1600
Mercury	0.18
Nickel	30
Selenium	3.9
Silver	2
Zinc	109

PFAS (mg/kg)	UU SCOs
Perfluorooctanoic Acid (PFOA)	0.00066
Perfluorooctanesulfonic Acid (PFOS)	0.00088

SVOCs (mg/kg)	UU SCOs
1,4-Dioxane (P-Dioxane)	0.1
2-Methylphenol (o-Cresol)	0.33
3-Methylphenol (m-Cresol)	0.33
4-Methylphenol (P-Cresol)	0.33
Acenaphthene	20
Acenaphthylene	100
Anthracene	100
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1
Benzo(g,h,i)Perylene	0.64
Benzo(k)fluoranthene	0.8
Chrysene	1
Dibenz(a,h)anthracene	0.33
Dibenzofuran	2.1
Fluoranthene	85
Fluorene	30
Indeno(1,2,3-cd)pyrene	0.5
Naphthalene	12
Pentachlorophenol	0.8
Phenanthrene	1.1
Phenol	0.33
Pyrene	64

PCBs/Pesticides (mg/kg)	UU SCOs
4,4'-DDD	0.0033
4,4'-DDE	0.0033
4,4'-DDT	0.0033
Aldrin	0.0048
Alpha BHC (Alpha Hexachlorocyclohexane)	0.02
Alpha Chlordane	0.014
Alpha Endosulfan	4.3
Beta Bhc (Beta Hexachlorocyclohexane)	0.021
Beta Endosulfan	4.3
Delta Bhc (Delta Hexachlorocyclohexane)	0.04
Dieldrin	0.005
Endosulfan Sulfate	4.3
Endrin	0.014
Gamma Bhc (Lindane)	0.025
Heptachlor	0.013
Total PCBs	0.1

Notes:

1. The Part 375 Unrestricted Use (UU) Soil Cleanup Objectives (SCOs) and UU guidance values for PFAS are shown for reference
2. VOC: volatile organic compound
3. SVOC: semivolatile organic compound
4. PCBs: polychlorinated biphenyls
5. PFAS: per- and polyfluoroalkyl substances
6. mg/kg: miligram per kilogram

**Table 2
Remedial Action Work Plan
Track 2 Soil Cleanup Objectives**

**C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030**

VOC (mg/kg)	RUR SCOs
1,1,1-Trichloroethane	100
1,1-Dichloroethane	19
1,1-Dichloroethene	0.41
1,2,4-Trimethylbenzene	41
1,2-Dichlorobenzene	100
1,2-Dichloroethane	2.4
1,3,5-Trimethylbenzene (Mesitylene)	41
1,3-Dichlorobenzene	11
1,4-Dichlorobenzene	10
Acetone	100
Aniline (Phenylamine, Aminobenzene)	6.7
Benzene	1.2
Carbon Tetrachloride	1.9
Chlorobenzene	73
Chloroform	4.8
Cis-1,2-Dichloroethene	8.7
Ethylbenzene	32
Hexachlorobenzene	0.33
Methyl Ethyl Ketone (2-Butanone)	100
Methylene Chloride	17
n-Butylbenzene	100
Nitrobenzene	0.77
n-Propylbenzene	100
Sec-Butylbenzene	100
T-Butylbenzene	100
Tert-Butyl Methyl Ether (MTBE)	40
Tetrachloroethene (PCE)	15
Toluene	100
Total Xylenes	100
Trans-1,2-Dichloroethene	75
Trichloroethene (TCE)	1.70
Vinyl Chloride	0.099

Metals (mg/kg)	RUR SCOs
Arsenic	16
Barium	410
Beryllium	8.8
Cadmium	2.5
Chromium, Hexavalent	1
Chromium, Trivalent	30
Copper	280
Cyanide	2.6
Lead	400
Manganese	2,000
Mercury	0.30
Nickel	87
Selenium	22
Silver	22
Zinc	1,300

PFAS (mg/kg)	RUR SCOs
Perfluorooctanoic Acid (PFOA)	0.0066
Perfluorooctanesulfonic Acid (PFOS)	0.0088

SVOCs (mg/kg)	RUR SCOs
1,4-Dioxane (P-Dioxane)	1.4
2-Methylphenol (o-Cresol)	100
3-Methylphenol (m-Cresol)	100
4-Methylphenol (P-Cresol)	100
Acenaphthene	100
Acenaphthylene	100
Anthracene	100
Benzo(a)anthracene	1
Benzo(a)pyrene	1
Benzo(b)fluoranthene	1
Benzo(g,h,i)Perylene	1.2
Benzo(k)fluoranthene	1.2
Chrysene	1.2
Dibenz(a,h)anthracene	0.33
Dibenzofuran	4.2
Fluoranthene	100
Fluorene	100
Indeno(1,2,3-cd)pyrene	0.5
Naphthalene	84
Pentachlorophenol	0.8
Phenanthrene	1.2
Phenol	100
Pyrene	100

PCBs/Pesticides (mg/kg)	RUR SCOs
4,4'-DDD	1.2
4,4'-DDE	0.78
4,4'-DDT	0.78
Aldrin	0.0088
Alpha BHC (Alpha Hexachlorocyclohexane)	0.042
Alpha Chlordane	0.14
Alpha Endosulfan	8.4
Beta Bhc (Beta Hexachlorocyclohexane)	0.042
Beta Endosulfan	8.4
Delta Bhc (Delta Hexachlorocyclohexane)	100
Dieldrin	0.017
Endosulfan Sulfate	8.4
Endrin	1.2
Gamma Bhc (Lindane)	0.050
Heptachlor	0.12
Total PCBs	1

Notes:

1. The Part 375 Restricted Use Residential (RUR) Soil Cleanup Objectives (SCOs) RUR guidance values for PFAS are shown for
2. VOC: volatile organic compound
3. SVOC: semivolatile organic compound
4. PCBs: polychlorinated biphenyls
5. PFAS: per- and polyfluoroalkyl substances
6. mg/kg: miligram per kilogram

Table 3
Remedial Action Work Plan
Track 4 Soil Cleanup Objectives

C Block
Brooklyn, New York
NYSDEC BCP Site No.: C224435
Langan Project No.: 170229030

VOC (mg/kg)	RURR SCOs
1,1,1-Trichloroethane	100
1,1-Dichloroethane	47
1,1-Dichloroethene	0.98
1,2,4-Trimethylbenzene	100
1,2-Dichlorobenzene	100
1,2-Dichloroethane	5.8
1,3,5-Trimethylbenzene (Mesitylene)	100
1,3-Dichlorobenzene	38
1,4-Dichlorobenzene	24
Acetone	100
Aniline (Phenylamine, Aminobenzene)	8.1
Benzene	3.7
Carbon Tetrachloride	7.1
Chlorobenzene	100
Chloroform	24
Cis-1,2-Dichloroethene	41
Ethylbenzene	76
Hexachlorobenzene	0.33
Methyl Ethyl Ketone (2-Butanone)	100
Methylene Chloride	81
n-Butylbenzene	100
Nitrobenzene	1.8
n-Propylbenzene	100
Sec-Butylbenzene	100
T-Butylbenzene	100
Tert-Butyl Methyl Ether (MTBE)	100
Tetrachloroethene (PCE)	18
Toluene	100.0
Total Xylenes	100
Trans-1,2-Dichloroethene	100
Trichloroethene (TCE)	6.40
Vinyl Chloride	0.48

Metals (mg/kg)	PGW SCOs	RURR SCOs
Arsenic	*	16
Barium	*	410
Beryllium	*	43
Cadmium	*	2.5
Chromium, Hexavalent	*	1
Chromium, Trivalent	*	110
Copper	*	280
Cyanide	*	13
Lead	450	400
Manganese	*	2,000
Mercury	*	0.3
Nickel	*	320
Selenium	*	110
Silver	*	110
Zinc	*	6,600

PFAS (mg/kg)	RURR SCOs
Perfluorooctanoic Acid (PFOA)	0.033
Perfluorooctanesulfonic Acid (PFOS)	0.044

SVOCs (mg/kg)	PGW SCOs	RURR SCOs
1,4-Dioxane (P-Dioxane)	*	5.7
2-Methylphenol (o-Cresol)	*	100
3-Methylphenol (m-Cresol)	*	100
4-Methylphenol (P-Cresol)	*	100
Acenaphthene	*	100
Acenaphthylene	*	100
Anthracene	*	100
Benzo(a)anthracene	1	1.4
Benzo(a)pyrene	22	1
Benzo(b)fluoranthene	2.1	1.4
Benzo(g,h,i)Perylene	*	4.9
Benzo(k)fluoranthene	2	4.9
Chrysene	1	4.9
Dibenz(a,h)anthracene	*	0.33
Dibenzofuran	*	18
Fluoranthene	*	100
Fluorene	*	100
Indeno(1,2,3-cd)pyrene	6.6	1.4
Naphthalene	*	100
Pentachlorophenol	*	1.3
Phenanthrene	*	4.9
Phenol	0.33	100
Pyrene	*	100

PCBs/Pesticides (mg/kg)	RURR SCOs
4,4'-DDD	5
4,4'-DDE	3.4
4,4'-DDT	3.8
Aldrin	0.044
Alpha BHC (Alpha Hexachlorocyclohexane)	0.18
Alpha Chlordane	0.65
Alpha Endosulfan	35
Beta Bhc (Beta Hexachlorocyclohexane)	0.18
Beta Endosulfan	35
Delta Bhc (Delta Hexachlorocyclohexane)	100
Dieldrin	0.075
Endosulfan Sulfate	35
Endrin	5.3
Gamma Bhc (Lindane)	0.21
Heptachlor	0.53
Total PCBs	1

Notes:

1. The Part 375 Restricted Use Restricted-Residential (RURR) and relevant Protection of Groundwater (PGW) Soil Cleanup Objectives (SCOs) and RURR and PGW guidance values for PFAS are shown for reference only.
2. * Only showing relevant PGW criteria values
3. VOC: volatile organic compound
4. SVOC: semivolatile organic compound
5. PCBs: polychlorinated biphenyls
6. PFAS: per- and polyfluoroalkyl substances
7. mg/kg: milligram per kilogram
8. ~ = no standard

**Table 4
Remedial Action Work Plan
Track 1 Remedial Cost Estimate**

**C Block
Brooklyn, New York
Langan Project No. 170229030
NYSDEC BCP Site No. C224435**

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	ABSOLUTE COST
CONTRACTOR FEES					
1	Asphalt Pavement Removal and Disposal		Lump Sum		\$ 150,000
2	Remediation Contractor - Mobilization and Operations		Lump Sum		\$ 500,000
3	Support of Excavation (SOE) - Soil Mix Wall	44,000	Per SF	\$ 230.00	\$ 10,120,000
4	Support of Excavation (SOE) - Core Beams	2,574,000	Per Pound per Foot	\$ 1.00	\$ 2,574,000
5	Dewatering		Lump Sum		\$ 3,000,000
6	Dust, Odor, and Vapor Control	42	Month	\$ 10,000	\$ 420,000
7	Management and Handling of Excavated Soil/Fill	169,400	Ton	\$ 40	\$ 6,776,000
8	Off-Site Transport and Disposal of Contaminated Soil/Fill - Hazardous Soil/Fill (1%)	1,694	Ton	\$ 290	\$ 491,260
9	Off-Site Transport and Disposal of Contaminated Soil/Fill - Nonhazardous Non-native Fill (90%)	152,460	Ton	\$ 55	\$ 8,385,300
10	Off-Site Transport and Disposal of Contaminated Soil/Fill - Petroleum-impacted Non-native Fill (9%)	15,246	Ton	\$ 65	\$ 990,990
11	Waterproofing/Vapor Barrier Installation	81,300	SF	\$ 13	\$ 1,056,900
12	Aboveground/Underground Storage Tank (AST/UST) Removal	2	Each	\$ 15,000	\$ 30,000
13	Management and Handling of Imported Fill Material (For Development)	125,000	CY	\$ 40	\$ 5,000,000
14	Import and Placement of Imported Fill Material to (For Development)	125,000	CY	\$ 30	\$ 3,750,000
CONTRACTOR FEES					\$ 43,244,450
(20% CONTINGENCY OF CONTRACTOR FEE SUBTOTAL)					\$ 8,648,890
ENGINEERING FEES					
15	Legal fees, BCP Consulting, Technical Support, NYSDEC and Attorney Coordination, and Citizen Participation		Lump Sum		\$ 200,000
16	Waste Characterization		Lump Sum		\$ 436,000
17	SWPPP		Lump Sum		\$ 60,000
18	Construction Administration		Lump Sum		\$ 400,000
19	Environmental Inspection		Lump Sum		\$ 2,100,000
20	SWPPP Inspections	42	Month	\$ 1,600	\$ 67,200
21	Geotechnical Support of Excavation (SOE) inspections (8 months)		Lump Sum		\$ 340,000
22	Confirmation Endpoint Sampling	212	Samples	\$ 2,000	\$ 424,000
23	Final Engineering Report and Project Closeout		Lump Sum		\$ 120,000
ENGINEERING FEE SUBTOTAL:					\$ 3,947,200
(20% CONTINGENCY OF CONTRACTOR FEE SUBTOTAL):					\$ 789,440
ESTIMATED COST (ROUNDED):					\$ 56,630,000

GENERAL NOTES AND ASSUMPTIONS

General Assumptions

- . This estimate was prepared for a Track 1 remedy. The information in this fee estimate is based on the available information and the anticipated scope of the work described herein. Scope and fee changes are possible based on new information and data collected during the implementation of the work. Utilization of this fee estimate information beyond the stated purpose is not recommended. Langan is not licensed to provide financial or legal consulting or tax credit accounting services; as such, this fee estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.
- . The site has a footprint of about 163,000 square feet. Assumes excavation to 20 feet below grade surface for the Track 1 remedy for a total of about 121,000 cubic yards (169,000 tons) of soil/fill material
- . This cost estimate assumes all on-site work occurs during the weekdays (Monday through Friday) during typical daytime working hours (7:00am through 5:00pm).
- . Groundwater elevation is estimated at between about el. -0.33 to 2.92 feet NAVD88.
- . Based on available Langan surveys, the elevation of the site ranges from about el. 12 NAVD88 at West Street to about el. 2 NAVD88 at the shoreline of the East River.
- . Unit quantities are estimated, costs provided are estimates and some costs are rounded up
- . The density factor used for conversion from cubic yards to tons was 1.4 tons per cubic yard
- . Assumes soil remaining in place meets the Track 1 Unrestricted Use (UU) Soil Cleanup Objectives (SCOs).
- . Site management services are not applicable and therefore excluded.
- . Costs do not include new building construction.
- . Assumes duration of remediation oversight will be 42 months.
- . Cost estimates presented herein reflect cost estimates for 2026. Estimated costs are subject to escalation and increases to account for inflation after 2026.

Item No.

- 2 Includes mobilization and demobilization of equipment and materials necessary to excavate, transport, and dispose the targeted soil per the Remedial Action Work Plan (RAWP). Also includes labor and any project related permit or regulation fees (excludes potential hazardous waste fees). Allowance includes permits, site fencing, construction trailer, site security, surveying and layouts, site safety plans and management, temporary electric, equipment delivery and staging, etc. This cost estimate assumes one contractor mobilization and demobilization effort for the remediation phase of the project.
- 3 and 4 Perimeter support assumes that support of excavation will be necessary at the site perimeter to facilitate remedial excavation site-wide excavation. SOE estimate assumes 30-inch soil/cement mix columns (5000psi minimum) to about 55 feet bgs with 6 inches of overlap and core beams (HP14X89, HP14X102, HP14X117, and W14X159). Allowance assumes remedial excavation to about el. -10 feet NAVD88 site-wide.
- 5 Dewatering assumes a flow rate of 50-100 gallons per minute for a perimeter-type dewatering system under continuous operation. Includes mobilization, demobilization, setup, and operation of a pre-treatment system (including carbon units, settling tanks, clarifiers, coagulant/flocculent tanks, ion exchange units, oil/water separator, pumps and flow meter) and discharge to the East River. Assumes 12 months of dewatering operations. Site-specific hydrogeological conditions may require a higher flow rate, a larger treatment system, and a longer duration of dewatering.
- 6 Dust, odor and vapor control will be required throughout the duration of remedial excavation. This cost estimate includes incremental costs associated with equipment and material necessary to monitor and mitigate vapor/odor emission.
- 7 Management and handling of contaminated and potentially hazardous material assumes 15% increase in labor costs for Occupational Safety and Health Administration (OSHA) trained labor. Soil handling includes excavation for off-site disposal.
- 8,9, and 10 The estimated volume for the on-site soil/fill removal is based on the sampling results of the 2022 Remedial Investigation performed by Langan. Assumes excavation of fill and soil to remedial excavation grade.
- 11 Assumes a continuous waterproofing/vapor barrier membrane will be installed below the foundation slab up to the proposed finished development grade.
- 12 Based on historical use of the site, there may be unknown USTs at the site. For this estimate, we assume that up to 2 AST/USTs will be decommissioned.
- 13 Accounts for placement and compaction of imported fill used to raise land surfaces to design grade.
- 14 Fill will be required raise land surfaces across the site to design grades. Imported fill will meet Track 1 UU SCOs.
- 16 Includes reporting of waste characterization results for disposal-related requirements.
- 18 Includes bid support; the Remediation Engineer will answer field contractor questions related to remediation during the bidding process and support the current site owner, as necessary, during the bid leveling process. Includes submittal review, responses to Requests for Information (RFI), and coordination with development team and the architect.
- 19 Estimate includes, but is not limited to, implementation of a CAMP as required by the New York State Department of Environmental Conservation (NYSDEC), the presence of an on-site field staff throughout remediation, remediation health and safety including purchase and maintenance of appropriate personal protective equipment (PPE), periodic office reporting to the regulatory agency and attendance of at least two site meetings per month.
- 22 Sampling frequency based on a rate of one sample per 900 square feet of base, plus Quality Assurance/Quality Control (QA/QC) samples, in accordance with NYSDEC Division of Environmental Remediation (DER) Program Policy: Technical Guidance for Site Investigation and Remediation (DER-10) requirements.
- 23 Costs are based on Langan's experience with regulatory programs and includes the preparation of a Final Engineering Report (FER) and validation/management of analytical data for confirmation and documentation endpoint samples

**Table 5
Remedial Action Work Plan
Track 1/ Track 2 and Track 4 Remedial Cost Estimate**

**C Block
Brooklyn, New York
Langan Project No. 170229030
NYSDEC BCP Site No. C224435**

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	ABSOLUTE COST
CONTRACTOR FEES					
1	Asphalt Pavement Removal and Disposal		Lump Sum		\$ 150,000
2	Remediation Facilities, Mobilization, Demobilization, and Site Maintenance - Remediation and decontamination facilities, site fencing, trailer, truck cleaning facilities, etc.		Lump Sum		\$ 500,000
3	Support of Excavation (SOE) - Soil Mix Wall	23,900	Per SF	\$ 230.00	\$ 5,497,000
4	Support of Excavation (SOE) - Core Beams	1,395,000	Per Pound per Foot	\$ 1.00	\$ 1,395,000
5	Dewatering		Lump Sum		\$ 1,500,000
6	Dust, Odor, and Vapor Control	21	Month	\$ 10,000	\$ 210,000
7	Management and Handling of Excavated Soil/Fill	75,500	Ton	\$ 40	\$ 3,020,000
8	Off-Site Transport and Disposal of Contaminated Soil/Fill - Hazardous Soil/Fill (1%)	755	Ton	\$ 290	\$ 218,950
9	Off-Site Transport and Disposal of Contaminated Soil/Fill - Nonhazardous Non-native Fill (90%)	67,950	Ton	\$ 55	\$ 3,737,250
10	Off-Site Transport and Disposal of Contaminated Soil/Fill - Petroleum-impacted Non-native Fill (9%)	6,795	Ton	\$ 65	\$ 441,675
11	Waterproofing/Vapor Barrier Installation	81,300	SF	\$ 13	\$ 1,056,900
12	Sub-Membrane Depressurization (SMD) System Installation		Lump Sum		\$ 40,000
13	Aboveground/Underground Storage Tank (AST/UST) Removal	2	Each	\$ 15,000	\$ 30,000
14	Management and Handling of Backfilled Materials (For the Cover System and for Development)	26,000	CY	\$ 40	\$ 1,040,000
15	Import and Placement of Clean Fill Material to Development Grade (For the Cover System and for Development)	26,000	CY	\$ 30	\$ 780,000
16	Cover system - Building C1 (Concrete foundation slab and walls)	1,200	CY	\$ 215	\$ 258,000
17	Cover system - Roadways (Concrete base-slab)	900	CY	\$ 215	\$ 193,500
18	Cover system - Waterfront Access Area (Concrete walkways)	400	CY	\$ 180	\$ 72,000
CONTRACTOR FEES					\$ 19,616,775
(20% CONTINGENCY OF CONTRACTOR FEE SUBTOTAL)					\$ 3,923,355
ENGINEERING FEES					
19	Legal fees, BCP Consulting, Technical Support, NYSDEC and Attorney Coordination, and Citizen Participation		Lump Sum		\$ 200,000
20	Waste Characterization		Lump Sum		\$ 218,000
21	SWPPP		Lump Sum		\$ 60,000
22	Construction Administration		Lump Sum		\$ 200,000
23	Environmental Inspection		Lump Sum		\$ 1,050,000
24	SWPPP Inspections	21	Month	\$ 1,600	\$ 34,000
25	Geotechnical Support of Excavation (SOE) inspections (4 months)		Lump Sum		\$ 170,000
26	Confirmation Endpoint Sampling	156	Samples	\$ 2,000	\$ 312,000
27	Closure Reporting		Lump Sum		\$ 120,000
ENGINEERING FEE SUBTOTAL:					\$ 2,164,000
(20% CONTINGENCY OF CONTRACTOR FEE SUBTOTAL):					\$ 432,800
ESTIMATED ABSOLUTE COSTS (rounded):					\$ 26,140,000

GENERAL NOTES AND ASSUMPTIONS

General Assumptions

- This estimate was prepared for a split Track 1/2 and Track 4 remedy. The information in this fee estimate is based on the available information and the anticipated scope of the work described herein.
- Scope and fee changes are possible based on new information and data collected during the implementation of the work. Utilization of this fee estimate information beyond the stated purpose is not recommended. Langan is not licensed to provide financial or legal consulting or tax credit accounting services; as such, this fee estimate information is not intended to be utilized for complying with financial reporting requirements associated with liability services.
- The site has a footprint of about 163,000 square feet. Assumes excavation for a total of about 50,300 cubic yards (75,500 tons) of soil/fill material removal.
- This cost estimate assumes all on-site work occurs during the weekdays (Monday through Friday) during typical daytime working hours (7:00am through 5:00pm).
- Groundwater elevation is estimated at between about el. -0.33 to 2.92 feet NAVD88.
- Based on available Langan surveys, the elevation of the site ranges from about el. 12 NAVD88 at West Street to about el. 2 NAVD88 at the shoreline of the East River.
- Unit quantities are estimated, costs provided are estimates and some costs are rounded up
- The density factor used for conversion from cubic yards to tons was 1.4 tons per cubic yard
- Assumes soil remaining in place within buildings C2 and C3 meets the Track 1 Unrestricted Use (UU) Soil Cleanup Objectives (SCOs).
- Site management services are not applicable and therefore excluded.
- Costs do not include new building construction.
- Assumes duration of remediation oversight will be 21 months.
- Cost estimates presented herein reflect cost estimates for 2026. Estimated costs are subject to escalation and increases to account for inflation after 2026.

Item No.

- 2 Includes mobilization and demobilization of equipment and materials necessary to excavate, transport, and dispose the targeted soil per the Remedial Action Work Plan (RAWP). Also includes labor and any project related permit or regulation fees (excludes potential hazardous waste fees). Allowance includes permits, site fencing, construction trailer, site security, surveying and layouts, site safety plans and management, temporary electric, equipment delivery and staging, etc. This cost estimate assumes one contractor mobilization and demobilization effort for the remediation phase of the project.
- 3 and 4 Perimeter support assumes that support of excavation will be necessary along the Track 1/2 area (including buildings C2 and C3) and in parts of the Track 4 area (parts of building C1 and the Connector Road). SOE estimate assumes 30-inch soil/cement mix columns (5000psi minimum) to about 41 feet bgs with 6 inches of overlap and core beams (HP14X89, HP14X102, HP14X117, and W14X159). Allowance assumes remedial excavation to about el. -5 feet NAVD88 at building C2 and C3 and to between about el. -5 and el.-7 in parts of building C1.
- 5 Dewatering assumes a flow rate of 50-100 gallons per minute for a perimeter-type dewatering system under continuous operation. Includes mobilization, demobilization, setup, and operation of a pre-treatment system (including carbon units, settling tanks, clarifiers, coagulant/flocculent tanks, ion exchange units, oil/water separator, pumps and flow meter) and discharge to the East River. Assumes 6 months of dewatering operations. Site-specific hydrogeological conditions may require a higher flow rate, a larger treatment system, and a longer duration of dewatering.
- 6 Dust, odor and vapor control will be required throughout the duration of remedial excavation. This cost estimate includes incremental costs associated with equipment and material necessary to monitor and mitigate vapor/odor emission.
- 7 Management and handling of contaminated and potentially hazardous material assumes 15% increase in labor costs for Occupational Safety and Health Administration (OSHA) trained labor. Soil handling includes excavation for off-site disposal.
- 8,9, and 10 The estimated volume for the on-site soil/fill removal is based on the sampling results of the 2022 Remedial Investigation performed by Langan. Assumes excavation of fill and soil to remedial excavation grade.
- 11 Assumes a continuous waterproofing membrane will be installed below the foundation slab up to the proposed finished development grade.
- 13 Based on historical use of the site, there may be unknown USTs at the site. For this estimate, we assume that up to 2 AST/USTs will be decommissioned.
- 14 Accounts for placement and compaction of imported fill used to raise land surfaces to design grade.
- 15 Fill will be required to raise land surfaces across the site to design grades. Imported fill will meet the relevant SCOs.
- 20 Includes reporting of waste characterization results for disposal-related requirements.
- 22 Includes bid support; the Remediation Engineer will answer field contractor questions related to remediation during the bidding process and support the current site owner, as necessary, during the bid leveling process. Includes submittal review, responses to Requests for Information (RFI), and coordination with development team and the architect.
- 23 Estimate includes, but is not limited to, implementation of a CAMP as required by the New York State Department of Environmental Conservation (NYSDEC), the presence of an on-site field staff throughout remediation, remediation health and safety including purchase and maintenance of appropriate personal protective equipment (PPE), periodic office reporting to the regulatory agency and attendance of at least two site meetings per month.
- 26 Sampling frequency based on a rate established in the RAWP, plus Quality Assurance/Quality Control (QA/QC) samples, in accordance with NYSDEC Division of Environmental Remediation (DER) Program Policy: Technical Guidance for Site Investigation and Remediation (DER-10) requirements.
- 27 Costs are based on Langan's experience with regulatory programs and includes the preparation of a Final Engineering Report (FER) and periodic daily and monthly reporting.