# DRAFT REMEDIAL INVESTIGATION WORK PLAN

# for

# Former Thomas W. Woods & Sons Coal Yard
# Brooklyn, New York

***Prepared for:***

**252 Third Street Realty LLC**
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LANGAN

**5 August 2026**
**Langan Project No. 170970401**

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## CERTIFICATION

I, Gerald Nicholls, certify that I am currently a NYS registered professional engineer as defined in Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 375 and that this Remedial Investigation Work Plan (RIWP) was prepared in accordance with all applicable statutes and regulations and in substantial conformance with the New York State Department of Environmental Conservation (NYSDEC) Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation and DER-31 Green Remediation.

**DRAFT**

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Gerald Nicholls, PE, CHMM

## 1.0 INTRODUCTION

This Remedial Investigation Work Plan (RIWP) was prepared on behalf of 252 Third Street Realty LLC (the Requestor) for the proposed Former Thomas W. Woods & Sons Coal Yard Brownfield Cleanup Program (BCP) site at 252 Third Street in the Gowanus neighborhood of Brooklyn, New York (the site). This RIWP is being submitted in conjunction with the Requestor's application for the New York State Department of Environmental Conservation (NYSDEC) BCP.

The objective of the RIWP is to further investigate and characterize the nature and extent of environmental impacts at the site, to provide sufficient information to evaluate potential impacts to human health, and to provide sufficient information to evaluate remedial alternatives, as required. This RIWP was developed in accordance with the process and requirements identified in the NYSDEC Division of Environmental Remediation (DER)-10 Technical Guidance for Site Investigation and Remediation (May 2010), DER-31 Green Remediation, Title 6 of the New York Codes, Rules, and Regulations (NYCRR) Part 375, Sampling, Analysis, and Assessment of Per- and Polyfluoroalkyl Substances (PFAS) Under NYSDEC's Part 375 Remedial Programs (April 2023) and the New York State Department of Health (NYSDOH) Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006, with subsequent updates).

## 2.0 SITE BACKGROUND

### 2.1 Site Description

The site is at 252 Third Street and is identified as Block 980, Lot 19 on the Brooklyn Borough Tax Map. The about 25,925-square-foot (0.60-acre) site is occupied by an open-air gravel-covered parking lot. There is a temporary security booth in the northern part of the site, but there are no permanent structures on-site. The site is bound by Third Street to the north, a one-story commercial building (Staples) to the east, a one-story commercial building (U-Haul) to the south, and a 3-story commercial office building to the west. A site location map is provided as Figure 1.

According to the 2023 United States Geological Survey (USGS) 7.5-minute quadrangle topographic map for Brooklyn, the site elevation (el) is approximately el 20 feet relative to the North American Vertical Datum of 1988 (NAVD88).

### 2.2 Proposed Redevelopment Plan

The site is anticipated to be redeveloped into a multi-story residential building, consisting of mixed affordable housing and market-rate units. The contemplated use for purposes of redevelopment of the site under the NYSDEC BCP would be restricted-residential.

According to New York City's Zoning and Land Use Map (ZOLA), the site is in an M1-4/R7X zoning district and included in the Special Gowanus Mixed Use District. M1-4 has a residential equivalent (R7X), indicating that residential uses can be developed within the district. The proposed use is consistent with applicable zoning laws and maps for the Gowanus neighborhood.

### 2.3 Surrounding Property Land Use

The site is located within an urban area characterized by commercial and residential uses. Adjoining and surrounding property usage is summarized in the following table:

| Direction | Block | Lot | Adjoining Properties | Surrounding Properties |
|---|---|---|---|---|
| **North** | Third Street | | | Mixed commercial and residential buildings, industrial buildings |
| | 968 | 1 | Consolidated Edison Inc. (ConEd) Yard (323 Third Avenue) | |
| **East** | 980 | 23 | Staples – Office Supply Store (356 Fourth Avenue) | Park, mixed commercial and residential buildings, |
| **South** | 980 | 95 | U-Haul Moving & Storage of Park Slope (213 Sixth Street) | Mixed commercial and residential buildings, Industrial buildings |
| **West** | 980 | 8 | The Old American Can Factory (361 Third Avenue) | Gowanus Canal, warehouses |

Land use within a half-mile of the site is urbanized and includes mixed-use buildings, industrial buildings, park land, and school facilities. The closest ecological receptor is the Gowanus Canal, which is located approximately 300 feet west of the site.

No schools or day care facilities are located on the site. Sensitive receptors, as defined in DER-10, within a half-mile of the site include those listed below:

| Number | Name (Approximate distance from site) | Address |
|---|---|---|
| 1 | Al-Madinah School (about 0.04-mile west of the site) | 383 3rd Avenue, Brooklyn, NY 11215 |
| 2 | New York-Presbyterian Medical Group Brooklyn – Multi-Specialty (about 0.04-mile east of the site) | 340 4th Avenue, Brooklyn, NY 11215 |
| 3 | One Brooklyn Health (about 0.05-mile southeast of the site) | 358 4th Avenue, Brooklyn, NY 11215 |
| 4 | Washington Park (about 0.09-mile east of the site) | 4th Street & 5th Avenue, Brooklyn, NY 11215 |
| 5 | Let's Play and Learn (about 0.12-mile southeast of the site) | 371 4th Avenue, Brooklyn, NY 11215 |
| 6 | Little Brooklyn Pre-K Center (about 0.13-mile north of the site) | 305-307 3rd Avenue, Brooklyn, NY 11215 |
| 7 | Daycare Park Slope – Zusin Child Care Center Brooklyn (about 0.14-mile east of the site) | 326 2nd Street, Brooklyn, NY 11215 |
| 8 | Zusin Daycare – Park Slope Child Care (about 0.14-mile east of the site) | 323 3rd Street, Brooklyn, NY 11215 |
| 9 | P.S. 372 – The Children's School (about 0.14-mile north of the site) | 512 Carroll Street, Brooklyn, NY 11215 |
| 10 | Regina's Daycare (about 0.15-mile southeast of the site) | 296 5th Street, Brooklyn, NY 11215 |
| 11 | Gil Hodges Community Garden (about 0.17-mile northeast of the site) | 534 Carroll Street, Brooklyn, NY 11215 |
| 12 | M.S. 51 William Alexander (about 0.17-mile east of the site) | 350 5th Avenue, Brooklyn, NY 11215 |
| 13 | P.S. 118 The Maurice Sendak Community School (about 0.17 mile southeast of the site) | 211 8th Street, Brooklyn, NY 11215 |
| 14 | Family Home Care Services of Brooklyn (about 0.17-mile southwest of the site) | 168 7th Street, Brooklyn, NY 11215 |
| 15 | Strong Place for Hope Day Care (about 0.18-mile east of the site) | 333 2nd Street, Brookyln, New York 11215 |
| 16 | Backyard Explorers (about 0.18-mile southeast of the site) | 300 6th Street, Brooklyn, NY 11215 |
| 17 | Textile Arts Center (about 0.19-mile north of the site) | 505 Carroll Street, Brooklyn, NY 11215 |
| 18 | Kid's Care Daycare (about 0.2-mile east of the site) | 281 1st Street, Brooklyn, NY 11215 |
| 19 | Bumble Bee Daycare (about 0.21-mile northeast of the site) | 258 4th Avenue, Brooklyn, NY 11215 |
| 20 | Rivendell School (about 0.21-mile north of the site) | 277 3rd Avenue, Brooklyn, NY 11215 |
| 21 | 420 Carroll Apartments (about 0.21-mile northwest of the site) | 420 Carroll Street, Brooklyn, NY 11215 |
| 22 | PlayGroup NYC (0.21-mile north of the site) | 540 President Street, Brooklyn, NY 11215 |
| 23 | Daddy's Daycare 1/2 (about 0.22-mile southeast of the site) | 315 7th Street, Brooklyn, NY 11215 |

| Number | Name (Approximate distance from site) | Address |
|---|---|---|
| 24 | Park Slope Apartments (about 0.22-mile southeast of the site) | 304 7th Street, Brooklyn, NY 11215 |
| 25 | Gowanus Waterfront Park (about 0.22-mile northwest of the site) | 100 1st Street, Brooklyn, NY 11231 |
| 26 | Medrite Park Slope Urgent Care – Brooklyn (about 0.23-mile northeast of the site) | 2454th Avenue, Brooklyn, NY 11215 |
| 27 | Tiny Steps MB (about 0.23-mile northeast of the site) | 256 4th Avenue, Brooklyn, NY 11215 |
| 28 | 499 President Gowanus Apartments (about 0.24-mile north of the site) | 499 President Street, Brooklyn, 11215 |
| 29 | CityMD Park Slope Urgent Care – Brooklyn (about 0.27-mile southeast of the site) | 420 5th Avenue, Brooklyn, NY 11215 |
| 30 | The Deermar Residences (about 0.27-mile south of the site) | 262 9th Street, Brooklyn, NY 11215 |
| 31 | Imagine South Slope Montessori (about 0.30-mile southeast of the site) | 421 5th Avenue, Brooklyn, NY 11215 |
| 32 | NY Preschool & Kids Club Park Slope-Gowanus (about 0.31-mile northeast of the site) | 206 4th Avenue, Brooklyn, NY 11215 |
| 33 | Tammy's Daycare (about 0.32-mile southwest of the site) | 140 10th Street, Brooklyn, NY 11215 |
| 34 | Daddy's Daycare 3 (about 0.32-mile southeast of the site) | 382 6th Street, Brooklyn, NY 11215 |
| 35 | Natalies Sunflower Academy (about 0.33-mile northeast of the site) | 238 5th Avenue, Brooklyn, NY 11215 |
| 36 | Les Petits Bilingues De New York (about 0.33-mile southeast of the site) | 461 4th Avenue, Brooklyn, NY 11215 |
| 37 | Treasure Trunk Theatre – Park Slope (about 0.37-mile northeast of the site) | 179 4th Avenue, Brooklyn, NY 11217 |
| 38 | Regina's Daycare (about 0.4-mile northeast of the site) | 711 Sackett Street, Brooklyn, NY 11217 |
| 39 | P.S. 039 Henry Bristow (about 0.41-mile southeast of the site) | 417 6th Avenue, Brooklyn, NY 11215 |
| 40 | Le Paradis des Anges (about 0.42-mile northeast of the site) | 710 Degraw St, Brooklyn, NY 11217 |
| 41 | Mini Minders Daycare (about 0.43-mile east of the site) | 249 6th Avenue, Brooklyn, NY 11215 |
| 42 | Kids World Daycare (about 0.45-mile northwest of the site) | 39 2nd Street, Brooklyn, NY 11231 |
| 43 | Daddy's Daycare 6 (about 0.45-mile northeast of the site) | 357 Douglass Street, Brooklyn, NY 11217 |
| 44 | P.S. 124 Silas B. Dutcher (about 0.45-mile south of the site) | 515 4th Avenue, Brooklyn, NY 11215 |
| 45 | Park Slope Family Health Center at NYU Langone (about 0.46-mile south of the site) | 220 13th Street, Brooklyn, NY 11215 |
| 46 | Park Slope Playground (about 0.46-mile northeast of the site) | 40 Lincoln Place, Brooklyn, NY 11217 |
| 47 | Beansprouts Nursery School (about 0.46-mile southeast of the site) | 453 6th Avenue, Brooklyn, NY 11215 |
| 48 | New York Memory Center (about 0.48-mile south of the site) | 199 14th Street, Brooklyn, NY 11215 |

| Number | Name (Approximate distance from site) | Address |
|---|---|---|
| 49 | P.S. 321 William Penn (about 0.48-mile east of the site) | 180 7th Avenue, Brooklyn, NY 11215 |
| 50 | Berkeley Carroll School (about 0.48-mile east of the site) | 417 6th Avenue, Brooklyn, NY 11215 |
| 51 | Daisy Family Daycare (about 0.48-mile south of the site) | 224 14th Street, Brooklyn, NY 11215 |

## 2.4 Site Physical Conditions

### 2.4.1 Topography

According to the 2023 USGS 7.5-minute quadrangle topographic map for Brooklyn, the site elevation is approximately el 20 NAVD88. The topography at the site is generally flat and the surrounding area slopes west towards the Gowanus Canal, which is located about 300 feet west of the site.

### 2.4.2 Site Geology

Based on a Phase II Environmental Site Investigation (ESI) completed by Langan Engineering, Environmental, Surveying, Landscape Architecture and Geology, D.P.C. (Langan) in December 2025, subsurface stratigraphy generally consists of a fill layer consisting of fine-grained sand with varying amounts of silt, gravel, and anthropogenic materials (brick, coal, coal ash, wood, vegetation, and concrete) extending from surface grade to between 9.5 feet bgs to boring termination depth of about 20 feet below grade surface (bgs). In borings where the fill layer did not extend to the boring termination depth, fill was underlain by brown-to-gray sand with varying amounts of clay and gravel, and clay lenses.

Bedrock was not encountered during the Phase II ESI or in previous borings. According to the USGS NYC Bedrock and Groundwater Mapper, bedrock is anticipated between 150 to 200 feet bgs. Based on a review of the "Bedrock and Engineering Geologic Maps of New York County and Parts of Kings and Queens Counties, New York, and Parts of Bergen and Hudson Counties, New Jersey" by Charles A. Baskerville, et al., the bedrock underlying the site is the Hartland Formation. The Hartland Formation is comprised of a dark grey, medium- to coarse-grained muscovite-biotite-garnet (mica) schist and grey fine-grained quartz feldspar granulite with biotite and garnet, with localized concentrations of granite and intrusions of coarse-grained granitic pegmatite.

### 2.4.3 Hydrogeology

Groundwater flow is typically topographically influenced, as shallow groundwater tends to originate in areas of topographic highs and flow toward areas of topographic lows, such as rivers, stream valleys, ponds, and wetlands. A broader, interconnected hydrogeologic 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 vegetative cover, and coverage by impervious surfaces. Other factors influencing groundwater include depth to bedrock, artificial fill, and variability in local geology and groundwater sources or sinks. Potable water is provided

by the City of New York and is derived from surface impoundments in the Croton, Catskill, and Delaware watersheds.

During implementation of the Phase II ESI, depth to groundwater was measured using an oil-water interface probe in monitoring wells and was observed from about 13.45 to 15.97 feet below the top of the well casings. The inferred regional groundwater flow direction, based on regional topography and proximity to water bodies, is to the west towards the Gowanus Canal.

### 2.5 Environmental History and Previous Investigations

The following environmental reports were prepared for the site and are included in Appendix A.

- *Phase I Environmental Audit – 252 Third Street, prepared by AquaTerra Environmental Services Corp. (AquaTerra), dated 1991*
- *Phase II Environmental Audit – 252-258 Third Street, prepared by AquaTerra, dated 1991*
- *Draft Phase I Environmental Site Assessment (ESA) – prepared by Integral Consulting Inc. (Integral), dated November 2015*
- *Draft Phase I ESA – prepared by Integral, dated January 2016*
- *Phase ESI – prepared by Langan, dated 11 February 2026, revised 5 June 2026*

Environmental conditions established in the above reports are summarized in the sections below.

<u>General Site History</u>

The site lies above the former Denton's Mill Pond and adjoining marsh, which was constructed in the early 1700s, and infilled as part of the Gowanus Canal construction in the mid-1800s. The site was then used for commercial and industrial uses from the early 1880s, including a coal yard (1888-1951), soap manufacturing operations (1951-1978), plating and polishing corporation (1965-1980), and autobody shop (1978-1982). A gasoline tank was noted on the 1926 Sanborn Fire Insurance Map in the northeastern part of the site, but was not depicted on subsequent maps. Additionally, the former 5$^{th}$ Street turning basin extension of the Gowanus Canal previously adjoined the site to the south before being infilled around 1950. The site began operating as a parking lot for Consolidated Edison (ConEd) in 1980 through the present-day. The site was assigned an E Designation (E-601) for hazardous materials and noise by the New York City Department of City Planning (NYCDCP) as part of the Gowanus Neighborhood Rezoning (CEQR No. 19DCP157K).

Previous Environmental Sampling

AquaTerra completed a limited Phase II Environmental Audit in 1991 to evaluate areas of environmental concern identified in the 1991 AquaTerra Phase I, including historical use of the northeastern part of the site as a metal plating and auto body repair facility from 1968 to 1974. As part of the Phase II Environmental Audit, AquaTerra collected 22 soil samples from 11 borings advanced between 2 and 5 feet bgs for laboratory analysis of VOCs and TCLP metals. While compounds were detected in the soil samples, concentrations of VOCs and TCLP metals were below relevant regulatory levels at the time, and no further actions were recommended by the report. The AquaTerra Phase II data is not tabulated in this RIWP because of its age and because it cannot be validated.

Langan completed a Phase II ESI between 22 and 30 December 2025. A summary of documented soil, groundwater, and soil vapor contamination from the Phase II ESI is provided in the below sections.

*Geophysical Survey*

Subsurface anomalies, interpreted as various utility lines (e.g., electric, gas, water, sewer), were detected across the site. Electrical utilities were identified along the Third Street sidewalk, and electrical enters the site into an above ground electrical box. Throughout the site, electrical utilities are overhead on utility poles. A 4-foot-wide by 6-foot-long anomaly was identified in the northwestern corner of the site approximately 4 feet bgs and is consistent with a potential UST.

*Soil*

Fill was observed from surface grade to between 9.5 feet bgs to boring termination depth of about 20 feet bgs and consisted of fine-grained sand with varying amounts of silt, gravel, and anthropogenic materials (brick, coal, coal ash, wood, vegetation, and concrete). In borings where the fill layer did not extend to the boring termination depth, the fill layer was underlain by native soil primarily consisting of brown-to-gray sand with varying amounts of clay and gravel, and clay lenses. Analytical results consisted of the following:

- The fill layer contains volatile organic compounds (VOC), semivolatile organic compounds (SVOC), polychlorinated biphenyls (PCB), and metals at concentrations above the Unrestricted Use (UU), Protection of Groundwater (PGW), and/or Restricted Use Restricted Residential (RURR) Soil Cleanup Objections (SCO). Of the 13 samples collected during the Phase II ESI, 11 contained concentrations of SVOCs and/or metals above the RURR SCOs. The presence of SVOCs, PCBs, and metals are attributed to the non-native fill quality and historical site operations. The presence of acetone in soil samples is likely a laboratory artifact.
    - The vertical extents of fill were not fully delineated, as fill extended to the termination of some Phase II ESI borings, and will require further delineation to characterize the nature of extent of fill site-wide.
- Soil underlying fill contains compounds including SVOCs and metals exceeding the UU and/or RURR SCOs. Out of the three samples collected from soil underlying fill, two samples (SB03_12-14 and SB03_15-17) contained concentrations of SVOCs and metals above the UU and RURR SCOs.

  - Soil samples from soil underlying fill require further investigation and both horizontal and vertical delineation to characterize the nature and extent of related impacts.
- Compounds detected in groundwater above the NYSDEC Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards and Guidance Values for Class GA water (collectively the NYSDEC SGVs) were evaluated in soil samples and compared to the Protection of Groundwater (PGW) SCOs. SVOCs and metals (acenaphthene, benzo(a)anthracene, benzo(b)fluoranthene, chrysene, benzo(a)pyrene, benzo(k)fluoranthene, indeno(1,2,3-cd)pyrene, and lead) were detected in soil samples above the PGW SCOs and in groundwater above the SGVs.

*Groundwater*

Groundwater across the site contains VOCs, SVOCs, and total and dissolved metals at concentrations exceeding the NYSDEC SGVs. Select SVOCs (acenaphthene, fluorene, phenanthrene, and naphthalene) and lead are attributed to an on-site historical source, and remaining SVOCs and beryllium are attributed to entrained sediments in the groundwater samples collected within the fill layer. Dissolved metals (including iron, magnesium, manganese, and sodium) detected above the SGVs in groundwater are common earth metals and are naturally occurring or representative of regional groundwater conditions. The groundwater impacts require further horizontal delineation.

*Soil Vapor*

Petroleum-related compounds and chlorinated solvents were detected in soil vapor samples across the site. The presence of petroleum-related compounds in soil vapor is attributed to historical site operations. No on-site source of chlorinated solvents was identified, and the relatively low concentrations of chlorinated solvents compounds do not indicate an on-site source and are consistent with background conditions within the Gowanus neighborhood.

Previous sample locations and analytical results are shown on Figures 2 through 5.

### 2.6 Areas of Concern

Based on the site history and the findings of previous studies, the areas of concern (AOC) to be further investigated by this remedial investigation (RI) are shown on Figure 6 and are described below.

**AOC 1: Fill**

The site lies above the former Denton's Mill Pond, which was constructed in the early 1700s and infilled in the mid-1800s with fill of an unknown origin. The southern portion of the site previously adjoined the 5$^{th}$ Street Turning Basin of the Gowanus Canal. The basin was infilled around 1950 with fill of an unknown origin. Historical above-ground coal pockets were present on-site as part of the Thomas W. Woods Coal Yard as early as 1888, and were demolished between 1951 and 1965. Additionally, two interconnected one-story buildings were present in the northeastern part of the site by 1965 and were demolished between 1980 and 1982. Construction and demolition debris associated with these historical structures may have been partially buried on-site during demolition, and likely contributes to the quality of fill on-site.

During Langan's Phase II ESI, fill was encountered from surface grade to between 9.5 and at least 20 feet bgs and consists of fine-grained sand with varying amounts of silt, gravel, and anthropogenic materials (brick, coal, coal ash, wood, and concrete). SVOCs, PCBs, and metals detected in the fill layer at concentrations above the UU, PGW, and/or RURR SCOs are attributed to the fill quality and historical site operations, including a coal yard, soap manufacturing operation, plating and polishing corporation, and autobody shop.

**AOC 2: SVOC and Metal-Impacted Soil and Groundwater**

As discussed in AOC 1, fill is present on the site from surface grade to between 9.5 feet bgs and at least 20 feet bgs and consists of fine-grained sand with varying amounts of silt, gravel, and anthropogenic materials (brick, coal, coal ash, wood, vegetation, and concrete). The fill is underlain by a light brown to gray clayey sand layer likely formed from sedimentation in the historical Denton's Mill Pond.

The clayey sand layer in the northern part of the site contains concentrations of SVOCs and metals exceeding the UU, PGW, and/or RURR SCOs. Out of the three samples collected from the clayey sand layer, two samples (SB03_12-14 and SB03_15-17) contained concentrations of SVOCs or metals above the UU, PGW, and/or RURR SCOs.

SVOCs and metals were detected above the SGVs in a groundwater sample from MW03 in the north-central part of the site, and SVOCs and total metals (lead and beryllium) were detected above the SGVs in a groundwater sample from MW07 in the southern part of the site. The detections of total metals in MW03 and MW07 are attributed to the quality of fill (AOC 1).

SVOCs and metals in soil and groundwater are attributed to historical site uses as the Denton's Mill Pond (1700s to mid-1800s), Thomas W. Woods & Sons coal yard (1888 to 1951), a plating and polishing corporation (1965 to 1980), and an auto body shop (1978-1982), or impacts from the south-adjoining 5$^{th}$ Street basin extension of the Gowanus Canal (see AOC 4).

**AOC 3: Historical Petroleum Bulk Storage and Related Impacts**

A gasoline tank was historically located in the northeastern part of the site, as depicted on the 1926 Sanborn Fire Insurance Map, and a geophysical anomaly consistent with a UST was identified in the northwestern part of the site during Langan's Phase II ESI. Petroleum-related VOCs (e.g., benzene and ethylbenzene) were detected above the SGVs in one groundwater sample collected from MW03 in the north-central part of the site. Petroleum-related VOCs were also detected in soil vapor samples across the site, with higher concentrations detected in SV02 in the northeastern part of the site. Petroleum-related impacts in groundwater and soil vapor in the northern part of the site are attributed to historical on-site petroleum bulk storage (PBS).

**AOC 4: Grossly Contaminated Material/Nonaqueous Phase Liquid**

The Gowanus Canal, which is about 300 feet west of the site, is on the National Priorities List (NPL) as a Federal Superfund site, and contains grossly contaminated material (GCM) and nonaqueous phase liquid (NAPL) from historical manufactured gas plant (MGP) operations along the canal. Additionally, the 5$^{th}$ Street turning basin extension of the Gowanus Canal previously adjoined the site to the south until infilling

around 1950. The USEPA Record of Decision for the Gowanus Superfund Site has documented the presence of "bank-stored tar" along the Gowanus canal at similar elevations to tar present in the canal, which suggests that tar likely migrated along the canal and infiltrated into the banks of the canal at locations away from the original MGP source areas.

As documented in the December 2009 Gowanus Canal Remedial Investigation Technical Report, prepared by GEI Consultants, a sediment core was collected from the base of the Gowanus Canal within the 4th Street basin (GC-SED-87), about 300 feet west of the site. The sediment core contained petroleum-related impacts, including a petroleum-like odor and sheen, from about 4.4 to 6.2 feet below the canal bottom (about el. -10 to -11.8); and tar-coated grains and concentrations of GCM-related compounds (e.g., SVOCs) from about 12.7 to 13.3 feet below the canal bottom (el. -18.3 to -18.9). To the best of our knowledge, no samples have been collected from the previously infilled 5th Street turning basin as part of the Gowanus Canal RI. Given the proximity of the site to the Gowanus Canal, there is a potential for GCM/NAPL migration to the site via the former 5th Street basin.

## 3.0 SCOPE OF WORK

The objective of this RIWP is to supplement existing data to investigate and characterize "the nature and extent of the contamination at and/or emanating from a brownfield site," as required to satisfy New York Environmental Conservation Law (ECL) 27-1411.1.

The field investigation will include the tasks summarized below, which are discussed in more detail in the following sections. The rationale for each sampling location, in relation to the AOCs and analytical parameters for each proposed sample, is provided in Table 1.

*Geophysical Survey*

- Perform a supplemental geophysical survey to locate USTs, underground structures, geophysical anomalies, and utilities across accessible areas of the site, including in the vicinity of proposed sampling locations and a historical UST previously present in the northeastern part of the site.

*Soil Borings and Sampling*

*Shallow Borings*

- Advance nine soil borings to at least 25 feet bgs or approximately 5 feet below the fill/soil interface, whichever is shallower. If impacts are identified during advancement, borings will be extended to the depth interval where impacts are no longer observed. Soil borings to be converted to groundwater monitoring wells will be advanced to at least 7 feet below the observed groundwater interface.
- Collect at least three soil samples from each boring (plus quality assurance/quality control [QA/QC] samples) to characterize and delineate the nature and extent of soil contamination at the site.

*GCM/NAPL Borings*

- Advance three soil borings to at least 50 feet bgs[1] or approximately 10 feet below the lowest observation of GCM/NAPL, whichever is shallower, to characterize the nature and extent of any GCM/NAPL that may be present on the site. If impacts are identified during advancement, the following actions will be taken:
    - GCM/NAPL will be considered vertically delineated once a minimum of 10 feet of soil without GCM-related impacts is observed. If GCM is observed but the presence of NAPL is not readily determined, a shake test will be performed. Soil boring intervals with less than 50% recovery will not be used for delineation purposes, and additional borings will be advanced to achieve vertical delineation if necessary. Borings will be logged in general accordance with the NYSDEC-issued "Field Descriptions of Samples for Former MGP Sites" (Appendix B). A fingerprint analysis will be conducted if GCM is encountered.

[1] The proposed 50-foot boring depth for GCM/NAPL borings is over 10 feet below the interval where GCM/NAPL was observed in the closest sediment sample collected from the 4th Street basin of the Gowanus Canal (el. -18 feet NAVD88).

*Monitoring Well Installation and Sampling*

- Install and develop at least six new permanent monitoring wells (MW09, MW11, MW12, MW13, MW14, and MW15).
- Collect one groundwater sample from each new monitoring well (plus QA/QC samples) for laboratory analysis to further evaluate groundwater quality across the site and delineate VOCs in groundwater in the northern part of the site and SVOCs and metals across the site.
- Survey and gauge all newly and previously installed monitoring wells using an oil-water interface probe to evaluate groundwater elevation, flow direction, and the potential presence of NAPL.

*GCM/NAPL Borings*

- If GCM/NAPL is observed in any of the three deep borings, the following groundwater investigation scope will be completed to evaluate NAPL mobility and groundwater quality, respectively:
    - NAPL Mobility Wells: A permanent monitoring well will be installed within the boring(s) where impacts are observed and screened at the depth of observed impacts with a 5-foot sump below the screen. If more than one distinct interval of GCM/NAPL are identified within the boring, additional NAPL mobility wells will be installed, as feasible, in coordination with NYSDEC.
    - Groundwater Monitoring Wells: A permanent monitoring well will be installed immediately down-gradient of the boring where impacts are observed and will be screened below the impacted interval. Upon completion of soil borings, NYSDEC will be consulted if GCM/NAPL is observed to determine locations for deep groundwater monitoring wells. Deep groundwater monitoring wells will be installed if required by NYSDEC.
    - A synoptic gauging event will be performed no sooner than 7 days following the installation and development of NAPL mobility and groundwater monitoring wells. Observations of odor, sheen, blebs, free-phase product, tar, staining, or coating of the sampling equipment, etc. will be included in well construction and groundwater sample collection logs.
    - If GCM/NAPL is not observed, mobility and monitoring wells will not be installed.

*Soil Vapor Installation and Sampling*

- Install six soil vapor points to about 5 feet bgs or 2 feet above the observed groundwater table (whichever is shallower).
- Collect one soil vapor sample from each soil vapor point for laboratory analysis to further evaluate the nature and extent of soil vapor contamination across the site.

At the completion of the above scope of work, the NYSDEC and NYSDOH Project Managers will be consulted, as reasonable, to determine if additional samples are needed based on field observations

and/or analytical data. If any modifications to the RIWP are made, they will be documented in the Remedial Investigation Report (RIR).

The field investigation will be completed in accordance with the procedures specified in the Quality Assurance Project Plan (QAPP), Health and Safety Plan (HASP), and Community Air Monitoring Program (CAMP) included as Appendices C, D, and E, respectively.

The names, contact information and roles of the personnel who will participate in the investigation are listed below. Résumés for Langan employees involved in the project are included in the QAPP (Appendix C).

| Personnel | Investigation Role | Contact Information |
|---|---|---|
| Gerald Nicholls, PE, CHMM<br>Langan Engineering | Remediation Engineer | Phone – 212-479-5559<br>Email – gnicholls@langan.com |
| Elizabeth Adkins, PE<br>Langan Engineering | Project Manager | Phone – 212-479-5445<br>Email – eadkins@langan.com |
| Lisa Cristiano<br>Langan Engineering | Field Team Leader | Phone – 212-479-5499 x 5654<br>Email – lcristiano@langan.com |
| Tony Moffa, CHMM<br>Langan Engineering | Langan Health & Safety Officer | Phone – 215-491-6500<br>Email – tmoffa@langan.com |
| William Bohrer, PG<br>Langan Engineering | Field Safety Officer | Phone – 212-479-5533<br>Email – wbohrer@langan.com |
| Mimi Raygorodetsky<br>Langan Engineering | Quality Assurance Officer | Phone – 212-479-5441<br>Email – mraygorodetsky@langan.com |
| Patty Werner-Els<br>SGS North America Inc. | Laboratory Contractor | Phone – 631-300-6723<br>Email – Patty.Werner-Els @sgs.com |
| Joe Conboy<br>Langan Engineering | Program Quality Assurance Monitor/ Data Validator | Phone – 609-282-8055<br>Email – jconboy@langan.com |

## 3.1 Geophysical Survey

A geophysical surveying contractor will perform a geophysical survey to locate USTs, underground structures, geophysical anomalies, identify utilities across accessible areas of the site, and clear subsurface boring locations of potential subsurface obstructions. The geophysical survey will be completed using standard geophysical instruments, including electromagnetic and utility line locator instruments and ground-penetrating radar (GPR). The results of the survey may require relocating subsurface boring locations.

## 3.2 Soil Investigation

### 3.2.1 Soil Boring Installation

The drilling subcontractor will advance at least nine shallow soil borings and three deep soil borings using a Sonic drill rig to further investigate the AOCs identified in Section 2.6 and supplement Langan's Phase II ESI dated 11 February 2026 and updated on 6 June 2026. A plan showing the proposed sample locations is included as Figure 6, and a summary of the proposed laboratory analyses for each sample is included as

Table 1. The following table associates borings and/or monitoring wells with AOCs and describes the rationale for each.

| AOC | Associated Soil Borings and/or Monitoring Wells | Rationale |
|---|---|---|
| AOC 1 | SB08, SB10, SB14 through SB16 | Further evaluate the nature and extent of fill across the site |
| AOC 2 | SB08, SB10 through SB16, MW11 through MW13, MW14, and MW15 | Further evaluate the nature and extent of SVOCs and metals in soil underlying fill in SB03 and in groundwater in MW03 and MW07 during the Phase II ESI |
| AOC 3 | SB09, SB11 through SB13, MW09, MW11 through MW13 | Further evaluate the petroleum-related impacts in the northern part of the site associated with historical and suspected petroleum-bulk storage |
| AOC 4 | SB17_D through SB19_D | Evaluate the nature and extent of GCM/NAPL, if present, in deep soil borings |

The soil borings will be advanced using a hand auger and direct-push (shallow borings) or sonic (deep soil borings and monitoring wells) drilling technology. The direct-push drill rig will be equipped with a closed-point Macro-Core sampler to prevent the collapse of sidewall material as borings are advanced. The Sonic drill rig will be equipped with stainless steel casing fitted with dedicated plastic bag samplers. Langan personnel will document the work, screen soil samples for environmental impacts, and collect representative environmental soil samples for laboratory analyses. Soil will be screened continuously to the boring termination depth for organic vapors with a PID equipped with a 10.6 electron volt (eV) bulb and for visual and olfactory evidence of environmental impacts (e.g., NAPL, staining, odor). Soil will be visually classified for color, grain size, texture, and moisture content, and will be recorded in a field log. Site operations will comply with the safety guidelines outlined in the HASP in Appendix D. Non-disposable, down-hole drilling equipment and sampling apparatus will be decontaminated between locations with Alconox and water. Water used for decontamination and rinsate will be containerized into United Nations/Department of Transportation (UN/DOT)-approved 55-gallon drums, labeled, and staged for off-site disposal.

### 3.2.2 Soil Sampling and Analysis

AOC 1

At least three grab soil samples will be collected for laboratory analysis from borings SB08, SB10, and SB14 through SB16 to further investigate potential impacts from historical uses and fill quality across the site. Samples will be collected as follows:

- One representative fill sample will be collected from above the groundwater table. Fill samples will target select intervals where SVOCs, metals, pesticides, or polychlorinated biphenyls (PCB) were detected in nearby Phase II ESI borings.

- One sample will be collected from the 2-foot interval at the top of the soil underlying the fill layer.
- An additional sample will be collected from the 2-foot interval below the above noted sample and placed on hold with the laboratory pending receipt of the preliminary results.

Depending on the site conditions (e.g., fill depth, presence/absence of impacts) and recovery, the number of samples collected at each boring may vary.

Soil samples will be collected in laboratory-supplied containers and will be sealed, labeled, and placed in a chilled cooler (to attempt to maintain a temperature of <4ºC) for delivery to a NYSDOH Environmental Laboratory Approval Program (ELAP)-certified laboratory. Soil samples will be analyzed for one or more of the following using the latest United States Environmental Protection Agency (USEPA) methods:

- Target Compound List (TCL) VOCs by USEPA Methods 8260C/5035
- TCL SVOCs (including 1,4-dioxane) by USEPA Method 8270D
- PCBs by USEPA Method 8082A
- Target Analyte List (TAL) metals (including cyanide and hexavalent and trivalent chromium) by USEPA Methods 6010C/7471B/9010C/7196A
- Pesticides and herbicides by USEPA Methods 8081B and 8151A, respectively
- PFAS (40-compound list) by USEPA Method 1633

AOC 2

A grab soil sample will be collected from borings SB08, SB11, SB12, and SB13 to assess the feasibility of a partial Track 2 cleanup and to delineate contamination identified in the soil underlying fill identified in soil boring SB03 during the Phase II ESI. One sample will be collected from the 15- to 17-foot interval for analysis of TCL SVOCs (including 1,4-dioxane) by USEPA Method 8270D, and TAL metals (including cyanide and hexavalent and trivalent chromium) by USEPA Methods 6010C/7471B/9010C/7196A based on analytical results from the Phase II ESI.

The proposed RI soil samples are summarized in Table 1. QA/QC procedures to be followed and sampling frequency are described in the QAPP in Appendix C.

AOC 3

Soil boring SB09 will be advanced downgradient of the suspected UST identified on the 1926 Sanborn map, and soil borings SB11 through SB13 will be advanced to the east, south, and west of SB03 to investigate potential petroleum impacts in the northern part of the site. If petroleum-related impacts are observed in these borings, samples for VOCs and SVOCs will be collected from the following intervals:

- One sample will be collected from the interval exhibiting the greatest degree of impacts (based on the presence of staining, odor, and/or PID readings above background), if encountered.
- One sample will be collected from the 2-foot interval below the vertical extent of identified impacts, if encountered.
- If no impacts are observed, one sample will be collected from the groundwater interface.

If petroleum impacts are identified in other soil borings outside of the AOC area, the above sampling rationale will be implemented.

AOC 4

If GCM/NAPL is observed in soil borings SB17_D through SB19_D, a grab soil sample will be collected from each distinct interval where impacts are observed and the interval below each identified GCM/NAPL interval. GCM/NAPL impacted samples will be analyzed for coal-tar specific analytical parameters (TCL/Part 375-list VOCs and SVOCs) to evaluate the extent of impacts and characterize the contaminant profile. Soil samples will not be collected from soil borings where GCM/NAPL is not observed.

## 3.3 Groundwater Investigation

### 3.3.1 Shallow Monitoring Well Installation

At least six soil borings will be converted into permanent shallow groundwater monitoring wells (MW09, and MW11 through MW15). The proposed wells are included on Figure 6. As indicated in Table 1, groundwater samples from the five new monitoring wells will be used to investigate and characterize the nature and extent of contamination associated with AOCs 1, 2, and 3.

Monitoring well locations will be numbered in conjunction with their respective soil boring numbers and prefixed with "MW." Soil conditions will be screened and logged as described in Section 3.2. Shallow monitoring wells will be constructed in accordance with the specifications listed in Table 2.

After installation, the wells will be developed by surging using either a weighted bailer or surge block across the well screen and casing to agitate and remove fines. After surging, the well will be purged via pumping until the water becomes visually clear. The well will then be allowed to stabilize for a minimum of one week before sampling.

### 3.3.2 Groundwater Sampling and Analysis

Before sampling, the headspace of each well will be measured with a PID. Because groundwater samples will be analyzed for PFAS, wells will be gauged with an interface probe to determine the depth to groundwater and thickness of any NAPL during well construction and again after groundwater samples are collected and the water table elevation stabilizes, to avoid potential cross contamination. If NAPL is encountered, representative samples of the product will be collected for laboratory fingerprint analysis. Groundwater samples will not be collected from monitoring wells that contain NAPL.

One groundwater sample will be collected from each newly installed well in general accordance with NYSDEC DER-10 and USEPA's Low Flow Purging and Sampling Procedures for the Collection of Groundwater Samples from Monitoring Wells (EQASOP-GW4 Revised Sep. 2017) and the NYSDEC guidance for Sampling, Analysis, and Assessment of PFAS under NYSDEC's Part 375 Remedial Programs (April 2023).

Before the groundwater samples are collected, wells will be continuously purged until groundwater quality parameters (pH, conductivity, turbidity, dissolved oxygen, temperature, and oxidation-reduction potential) stabilize or the wells have been purged for one hour, whichever is sooner, in accordance with

the USEPA low-flow guidance. The groundwater samples will be collected once purged water is clear of sediment and turbidity is below 5 Nephelometric Turbidity Units (NTU). Samples will be collected with a peristaltic pump or equivalent and dedicated polyethylene tubing. Groundwater samples will be collected at a maximum flow rate of 0.5 liters per minute. Development and purge water will be containerized into UN/DOT-approved 55-gallon drums, labeled, and staged for off-site disposal.

The groundwater samples will be collected in laboratory-supplied containers and will be sealed, labeled, and placed in a chilled cooler (to attempt to maintain a temperature of <4ºC) for delivery to the laboratory. Groundwater samples will be analyzed using the latest USEPA methods as follows:

- TCL VOCs by USEPA Method 8260C
- TCL SVOCs by USEPA Method 8270D (1,4-dioxane by 8270 SIM isotope dilution)
- PCBs by USEPA Method 8082A
- TAL Metals (field-filtered and unfiltered) (including hexavalent and trivalent chromium) by USEPA Method 6010C/7470
- Cyanide by USEPA Method 9012B
- Pesticides and herbicides by USEPA Methods 8081B and 8151A, respectively
- PFAS (40-compound list) by USEPA Method 1633

The proposed groundwater samples are summarized in Table 1. QA/QC sample collection procedures and sampling frequency are described in the QAPP in Appendix C.

#### 3.3.3 Monitoring Well Survey and Synoptic Gauging

Langan will survey the vertical elevation of the monitoring wells, including ground surface elevation and the top of well casing, to the nearest 0.01 foot. The horizontal location will be measured off of a surveyed site feature. Vertical control will be established by surveying performed relative to NAVD88 by a New York State-licensed land surveyor. A synoptic gauging event will be performed after the new wells are installed to document static water levels across the site. This data will be used to prepare a groundwater contour map depicting the elevation of the water table across the site.

### 3.4 GCM/NAPL Contingency

#### 3.4.1 Monitoring Well Installation

If GCM/NAPL is observed in deep soil borings, NAPL mobility and groundwater monitoring wells will be installed, as described in Section 3.0.

Each monitoring well will be constructed with 2-inch-diameter PVC riser and a 10-foot-long, 0.03-inch slotted screen. The well annulus around the slotted screen in each well will be a minimum of 2 inches (minimum 6-inch-diameter boreholes). Clean sand (e.g., No. 2) will be used to fill the annulus around the screen up to about 2 feet above the top of the screened interval. A minimum 2-foot-thick bentonite seal will be installed above the sand, and the remaining borehole annulus will be backfilled with clean sand or drill cuttings with no evidence of chemical or petroleum impacts (i.e., staining, odors, or PID readings

above background conditions) to within 12 inches of the surface and/or grouted to the surface with a bentonite and cement slurry. Monitoring wells will be installed, developed, and sampled in accordance with the NYSDEC-issued Guidelines on Installation of Overburden Wells (Monitoring Wells) for Environmental Investigations. The NAPL mobility wells will be screened across the interval containing GCM/NAPL and include a 5-foot sump below the screen, and deep groundwater monitoring wells will be screened across the 10-foot interval below any observations of GCM/NAPL.

Following construction, monitoring well locations will be surveyed by a licensed surveyor and referenced to NAVD88. Monitoring well construction data, groundwater elevation, and surveyed locations in NAVD88 will be submitted electronically to the NYSDEC EQuIS database.

#### 3.4.2 Groundwater Sample Collection and Analysis

A groundwater sample will be collected from each NAPL monitoring and groundwater monitoring well no sooner than 7 days after development. Groundwater samples will be analyzed for TCL/Part 375-list VOCs and SVOCs. If NAPL/GCM is observed in the well at the time of sampling, NAPL thickness will be documented in sampling logs and NAPL will be removed prior to groundwater sample collection. NAPL samples will be collected and analyzed for fingerprint analysis. NAPL samples will not be analyzed for VOCs, SVOCs, or cyanide, because NAPL is damaging to laboratory equipment required to perform these analyses. Groundwater from monitoring wells containing NAPL will only be sampled for VOCs and SVOCs if the NAPL can be fully separated from the groundwater samples. Samples will be collected with a peristaltic pump.

Groundwater samples will be collected in laboratory-supplied containers and will be sealed, labeled, and placed in an ice-chilled cooler (to attempt to maintain a temperature of about 4ºC) for delivery to a NYSDOH ELAP-certified laboratory.

### 3.5 Soil Vapor Investigation

#### 3.5.1 Soil Vapor Point Installation

Six soil vapor points (SV08, SV10, SV14, SV15, SV18, and SV19) will be installed using direct-push technology in accordance with the NYSDOH's Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006, with updates). A plan showing the proposed soil vapor point locations is included as Figure 6. As indicated in Table 1, soil vapor samples from each sampling location will be used to investigate and characterize the nature and extent of contamination associated with the AOCs.

Soil vapor points will be installed by advancing a probe implant to about 2 feet above the groundwater table or 5 feet bgs, whichever is shallower. The soil vapor collection points will consist of a 1.875-inch polyethylene implant with inert sample tubing (e.g., Teflon or Teflon-lined polyethylene). The annulus (i.e., the sampling zone) around the soil vapor implant and tubing will be filled with a clean, coarse sand pack followed by a hydrated bentonite seal to surface grade. Hydrated bentonite will also be used to create a seal around the tubing at the surface of the soil vapor points.

### 3.5.2 Soil Vapor Sampling and Analysis

Samples will be collected in accordance with the NYSDOH's Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (October 2006, with updates). Before collecting vapor samples, a minimum of three vapor point volumes (i.e., the volume of the sample implant and tubing) will be purged from each sample location at a rate of less than 0.2 liters per minute using a RAE Systems MultiRAE meter set at a low flow setting. The purged vapor will be monitored for VOCs with the MultiRAE during purging.

A helium tracer gas will be used to serve as a QA/QC technique to document the integrity of each vapor point seal before and after sampling. The tracer gas will be introduced into a container, which will shroud the vapor point and seal. Helium will be measured from the sampling tube and inside the container. If the sample tubing contains more than 10% of the tracer gas concentration that was introduced into the container, then the seal will be considered compromised and will be enhanced or reconstructed to prevent outdoor air infiltration.

A log sheet for each vapor sample will be completed to record sample identification; date and time of sample collection; sampling depth; name of the field personnel responsible for sampling; sampling methods and equipment; vapor purge volumes; volume of vapor extracted; flow rate; and vacuum of canisters before and after sample collection.

After the integrity of each seal is confirmed, vapor samples will be collected into laboratory-supplied batch-certified clean 2.7- or 6-liter Summa canisters with calibrated flow controllers. Vapor samples will be collected over a 2-hour sampling period and analyzed for VOCs by USEPA Method TO-15.

The proposed vapor samples are summarized in Table 1. QA/QC sample collection procedures and sampling frequency are described in the QAPP in Appendix C.

## 3.6 Sampling Contingency

Additional soil, groundwater, or vapor sampling locations may be completed, as needed, to evaluate unanticipated contamination and to horizontally and vertically delineate identified contamination (e.g., NAPL, VOCs, SVOCs, metals, or other analytes) based on field observations and preliminary analytical results. The objective of a sampling contingency is to provide adequate delineation of AOCs during a single mobilization event, if possible. The decision to complete additional sampling and delineation (including step-out distances and target-depth intervals) based on field observations and/or preliminary (non-validated) laboratory data will be made by Langan, potentially in consultation with NYSDEC and/or NYSDOH Project Managers. The location of any step-out soil borings and additional monitoring wells will be based on field observations and analytical data from adjacent borings and wells, site access, and drilling considerations. Sampling depths and analyses will be contingent on observations/findings.

## 3.7 Data Management and Validation

Laboratory analyses of soil, groundwater, and vapor samples will be conducted by a NYSDOH ELAP-approved laboratory in accordance with USEPA SW-846 methods and the data collected will be reported in NYSDEC analytical services protocol (ASP) Category B deliverable format. Environmental data will be

reported electronically using the database software application EQuIS as part of NYSDEC's Environmental Information Management System (EIMS) and via email.

QA/QC procedures required by the NYSDEC ASP and SW-846 methods, including initial and continuing instrument calibrations, standard compound spikes, surrogate compound spikes, and analysis of other samples (blanks and laboratory control samples), will be followed during the RI. The laboratory will provide sample bottles for the RI, which will be pre-cleaned and preserved in accordance with the SW-846 methods. Where there are differences in the SW-846 and NYSDEC ASP requirements, the NYSDEC ASP will take precedence.

Data validation will be performed in accordance with the USEPA validation guidelines for organic and inorganic data review. Validation will include the following:

- Verification of QC sample results (qualitative and quantitative)
- Verification of sample results (positive hits and non-detects)
- Recalculation of 10 percent of all investigative sample results
- Preparation of data usability summary reports (DUSRs)

The DUSRs will be prepared and reviewed by the Program Quality Assurance Monitor (PQAM). The DUSRs will provide a detailed assessment of each sample delivery group (SDG) and present the results of data validation, including a summary assessment of laboratory data packages, sample preservation and Chain of Custody procedures, and a summary assessment of precision, accuracy, representativeness, comparability, and completeness for each analytical method. Additional details on the DUSRs are provided in the QAPP in Appendix C.

The results from the RI will be reported in NYSDEC ASP Category B deliverable format and validated by the Data Validator identified in the QAPP. The DUSRs from the RI and the Phase II ESI will be prepared and included as an appendix in the RIR.

### 3.8 Management of Investigation-Derived Waste

Grossly-contaminated or excess soil cuttings and purge water will be containerized and staged on-site, pending proper disposal at an off-site waste management facility. Soil cuttings with no apparent staining, odors, or PID readings above background conditions will be used to backfill boreholes. Soil, purged groundwater, and decontamination fluids to be disposed of off-site will be placed in 55-gallon, UN/DOT-approved drums with closed tops. Drums will be properly labeled, sealed, and characterized. Drums will be labeled as nonhazardous waste pending analysis and stored in a manner to prevent contents from discharging to the environment. Investigation derived waste (IDW) will be disposed of off-site at one or more selected disposal facilities within 90 days of generation. If RI analytical data is insufficient to gain disposal facility acceptance, additional waste characterization samples will be collected. Additional sampling and analyses may be required based on the selected disposal facility. Waste characterization samples will be submitted to a NYSDOH ELAP-approved laboratory for analysis in accordance with the QAPP provided in Appendix C. Management of IDW will comply with NYSDEC DER-10 3.3(e) and DER-31 (Section 3.11).

## 3.9 Air Monitoring

Air monitoring will be conducted for site personnel (HASP) and the community (CAMP) (Appendix E). Fugitive particulate (dust) generation that could affect site personnel or the public is not expected because intrusive work is limited to boring, monitoring well, and vapor point installation, which does not disturb large volumes of soil.

Dust emissions will be monitored using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10). Organic vapors will be monitored with a PID. Odors will be periodically monitored by site personnel at and beyond the site perimeter. Dust and odor suppression measures (e.g., water misting, application of odor suppressant) will be implemented as needed. All PIDs used will be equipped with a 10.6 eV bulb.

### 3.9.1 Personnel Air Monitoring

Langan will conduct air monitoring of the breathing zone periodically during drilling and sampling activities to evaluate health and safety protection for the Langan field personnel. Initially, ambient air monitoring will be performed within the work area. Langan will monitor VOCs with a PID (MultiRAE 3000 or similar) in accordance with the HASP (Appendix D). If air monitoring during intrusive operations identifies the presence of VOCs, on-site personnel will follow the guidelines outlined in the HASP regarding action levels, permissible exposure, engineering controls, and personal protective equipment. If the VOC action level is exceeded, work will cease and the work location will be evacuated. Monitoring will continue until the levels drop to safe limits. At that time, work can resume with continued monitoring. If high levels persist, field activities will be halted and the work relocated to another area. If dust emissions are observed, work will stop and dust suppression measures will be used.

### 3.9.2 Community Air Monitoring Plan

In addition to air monitoring in the worker breathing zone, Langan will conduct community air monitoring in compliance with the NYSDOH Generic CAMP. CAMP deployment will comply with NYSDEC DER-10 Appendix 1A and Appendix 1B.

Langan will conduct periodic monitoring for VOCs during non-intrusive work such as the collection of groundwater samples. Periodic monitoring may include obtaining measurements upon arrival at a location, when opening a monitoring well cap, when bailing/purging a well, and upon departure from a location.

Langan will also conduct continuous monitoring for VOCs and dust during ground-intrusive work (e.g., soil boring advancement and monitoring well installation) in accordance with the CAMP in Appendix E.

## 3.10 Qualitative Human Health Exposure Assessment

A Qualitative Human Health Exposure Assessment (QHHEA) will be conducted in accordance with Appendix 3B of NYSDEC DER-10. The assessment will be included in the RIR.

### 3.11 Fish and Wildlife Resources Impact Analysis

A Fish and Wildlife Resources Impact Analysis (FWRIA) screening-level review was conducted in accordance with Section 3.10 and Appendix 3C of the NYSDEC DER-10, Technical Guidance for Site Investigation and Remediation as part of the BCP Application. This assessment will be included in the RIR.

### 3.12 Green and Sustainable Remediation

The NYSDEC DER-31 Green and Sustainable Remediation Initiative requires that green remediation concepts and techniques be considered during all stages of the remedial program, including investigation, with the goal of improving the sustainability of the cleanup and summarizing the net environmental benefit of any implemented green technology. The following measures will be implemented during the RI:

1. Limit use of generators, drilling equipment, and vehicles to reduce emissions to the atmosphere
2. Minimize IDW generated by reusing soil/fill that does not exhibit visual, olfactory, or PID evidence of contamination to backfill boreholes after sampling
3. Minimize truck travel for disposal of IDW by selecting local disposal facilities for IDW
4. Request that the environmental drillers use clean diesel equipment to reduce emissions to the atmosphere
5. Use public transportation to access the site during implementation of the RI, to the extent practicable
6. Use electric methods of data collection (e.g., tablets) during implementation of the RI to reduce paper consumption, when possible
7. Turn off battery-powered equipment when not in use to limit charging activities
8. Encourage drivers and heavy machinery operators to turn off vehicles and machines when not in use to reduce idling time

## 4.0 REMEDIAL INVESTIGATION REPORT

Following completion of the RI and receipt of analytical data, an RIR will be prepared in accordance with the applicable requirements of DER-10 Section 3.14. The report will include:

(1) A summary of the site history and previous investigations

(2) A description of site conditions and the remedial investigation

(3) Sampling methodology and field observations

(4) Evaluation of the results and findings

(5) Conclusions

(6) Recommendations for any further assessment, if warranted

The report will summarize the nature and extent of contamination for each AOC and identify complete and potentially complete exposure pathways (as determined through the QHHEA). DUSRs will be included in the RIR and electronic data deliverables will be submitted to the NYSDEC EQuIS database prior to submission of the draft RIR.

The report will include soil boring and well construction logs, sampling logs, tabulated analytical results, figures, and laboratory data packages. The analytical results will be organized in table format and include sample location; media sampled; sample depth; field/laboratory identification numbers; analytical results; and applicable Standards, Criteria, and Guidance (SCG) pertaining to the site and contaminants of concern for comparison. The report will include scaled figures showing the locations of soil borings, monitoring wells, and vapor points; sample concentrations above SCGs for each media; groundwater elevation contours and flow direction; and, if appropriate, groundwater contaminant concentration contours.

Soil analytical results will be compared to the UU SCOs, PGW SCOs, RURR SCOs, and the guidance values set forth in the NYSDEC Part 375 Remedial Programs guidance for Sampling, Analysis, and Assessment of PFAS (April 2023). Groundwater analytical results will be compared to the NYSDEC SGVs for Class GA water. Soil vapor results will be tabulated. The RIR will be provided in an electronic format to the NYSDEC.

## 5.0 SCHEDULE

A preliminary BCP schedule is provided as Appendix F. If the schedule changes, it will be updated and submitted to the NYSDEC.