SOIL VAPOR INTRUSION INVESTIGATION WORK PLAN

Brownfield Cleanup Program

585 Union Street Site
585 Union Street, Brooklyn, New York
New York City Tax Map Designation: Section 1, Block 203, Lot 51.61
NYSDEC BCP Site Number: C224329

Prepared for:

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19 West 24th Street, 12th Floor
New York, NY 10010

Submitted to:

New York State Department of Environmental Conservation
Region 2, Division of Environmental Remediation
625 Broadway, Albany, NY 12233-7020

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1.0 EXECUTIVE SUMMARY

A Site Management Plan (SMP) was a required element of the remedial program for the 585 Union Street Site located in Brooklyn, New York, which achieved a site-specific Track 4 remedy. After completion of the remedial work, some contamination was left at this Site, the SMP is in place until the groundwater and sub-slab vapor can be evaluated after the completion of the new on-site building to determine if there are remaining concentrations of groundwater and/or soil vapor contamination that require mitigation.

This work plan provides details only pertaining to the post-remediation media monitoring and sampling for soil vapor intrusion sampling.

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

Site Identification:	C224329, 585 Union Street, Brooklyn, NY
Institutional Controls:	Listed ICs Include: The property may be used for Restricted-Residential use as defined in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial use as defined in 6 NYCRR Part 375-1.8(g)(2)(iii), and Industrial use as defined in 6 NYCRR Part 375-1.8(g)(2)(iv); All ECs must be operated and maintained as specified in this SMP; All ECs must be inspected at a frequency and in a manner defined in this SMP; The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the NYC Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department; Groundwater and other environmental or public health monitoring must be performed as defined in this SMP; Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP; All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP; Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP; Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP; Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to

	assure compliance with the restrictions identified by the Environmental Easement; The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries noted on Figure 9, and any potential impacts that are identified must be monitored or mitigated; Vegetable gardens and farming on the Site are prohibited; and An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible. ECs must be inspected at a frequency and in a manner defined in the SMP.
Engineering Control	1. Cover system

Inspections:	**Frequency**
1. Cover inspection	Annually

Site Identification:	C224329, 585 Union Street, Brooklyn, NY
Evaluations:	
1. Groundwater Monitoring 2. Vapor Intrusion Evaluation	Annually, Should RAO Not Be Achieved Once during the heating season prior to building occupancy.
Monitoring:	
1. Groundwater Monitoring Wells MW-9 and MW-10	Collection of Groundwater Samples for CP-51 Table 2 VOCs
2. Vapor Intrusion Evaluation	Collection of Soil Vapor, Indoor Air and Ambient Air Samples For TO-15 VOC Analysis
Reporting:	
1. Groundwater Monitoring Data	Annually Until RAO Achieved
2. Vapor Intrusion Sampling Data	Once month after the Heating Season Sampling Event
3. Periodic Review Report	First PRR will be completed 16 months after the certificate of completion (COC), then annually unless otherwise approved by the Department

Further descriptions of the above requirements are provided in detail within the SMP.

2.0 INTRODUCTION

2.1 General

The Site Management Plan (SMP) is a required element of the remedial program for the 585 Union Street site located in Brooklyn, New York (hereinafter referred to as the "Site") until such a time as the groundwater and sub-slab air can be evaluated after the completion of the new on-site building to determine if there are remaining concentrations of groundwater and/or soil vapor contamination that require mitigation. A Site Location Map is provided as Figure 1. The Site is currently in the New York State (NYS) Brownfield Cleanup Program (BCP), which is administered by New York State Department of Environmental Conservation (NYSDEC), as Site No. C224329.

Gowanus Union Street LLC entered into a Brownfield Cleanup Agreement (BCA), Index No. C224329-09-21, on October 5, 2021, with the NYSDEC to investigate and remediate the site. A figure showing the site location and boundaries of this Site is provided in Figure 2.

The Site has achieved a site-specific Track 4 remedy, and, after completion of the remedial work, some contamination was left at this Site, which is hereafter referred to as "remaining contamination." Institutional and Engineering Controls (ICs and ECs) have been incorporated into the initial site remedy to control exposure to remaining contamination to ensure protection of public health and the environment. The Site will be limited to Restricted-Residential use (subject to local zoning laws), groundwater use is prohibited, and a mechanical system designed to evacuate vapors/gases will be installed in the subgrade parking garage to control airflow between occupied spaces and the parking garage. An Environmental Easement (EE) granted to the NYSDEC and recorded with the Office of the City Register of the City of New York on November 15, 2023 (City Register File Number [CRFN]: 2023000298006) requires compliance with this SMP and all ECs and ICs placed on the Site.

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

3.0 SITE SUMMARY AND SUMMARY OF PREVIOUS INVESTIGATIONS AND REMEDIAL ACTIONS

3.1 Site Location and Description

The Site is located in the Gowanus neighborhood of Brooklyn, Kings County, New York and is identified as Block 433 and Lot 28 on the New York City Tax Map (see Figure 1). The Site is an approximately 0.77-acre area and is bounded by Sacket Street to the north, Union Street to the south, 3rd Avenue to the east, and numerous multi-story residential properties to the west (see Figure 3 – Site Layout Map). The owner and operator of the Site parcel at the time of issuance of this SMP is Gowanus Union Street LLC.

3.2 Physical Setting

3.2.1 Land Use

The Site will consist of a mixed use residential/commercial building with a fully built out cellar to be utilized for resident parking and minor landscaped areas situated in planters along Union Street and Sackett Street. The Site is zoned M1-4/R7A for light manufacturing and medium-density residential and located in a Coastal Zone and Federal Opportunity Zone. The Coastal Zone designation subjects the Site to the New York City Waterfront Revitalization Program (WRP). The Site is currently undergoing superstructure construction/development, and it should be noted that the sub-grade cellar foundation has been completed as of the issuance of this SMP.

The properties adjoining the Site and in the surrounding neighborhood primarily include commercial and mixed-use/residential properties. The properties immediately south of the Site include several multi-story mixed residential and commercial properties including New Body Fitness Boot CAMP/Personal Training, HIIT Box, and Green Pup. The properties immediately north of the Site include a one-story commercial warehouse occupied by A&A Brake Service and Truck Auto Parts. The properties immediately east of the Site include a one-story industrial warehouse occupied by S.J Fuel Co. The properties to the west of the Site include several multi-story residential properties.

3.2.2 Geology

Site-specific geology conditions observed during the remedial investigation indicated fill material to 5 feet below grade (fbg) across most of the Site with fill material extending to 10 fbg predominantly on the southern portion of the Site and to 15 fbg at boring locations on the east, central and south-central portions

of the Site. The fill material is described as brown to dark brown medium to coarse sand with gravel, rock and anthropogenic materials consisting of concrete and brick fragments, coal, cinders, pieces of glass, tile, ceramics and/or wood. The soil identified beneath the fill material is generally described as brown-to-reddish brown and/or light grey fine-to-coarse sand with some gravel, rock fragments, silt and clay with organics in some borings to depths of 15 to 20 fbg.

The Site is proximate to the Gowanus Canal which was a tidal creek with wetlands/lowland marsh areas prior to urban development in the 1800s. The historical placement of fill materials associated with the Canal bulkhead and riprap construction, as well as the general industrialized development of the Site area, is consistent with the urban fill material observed beneath the Site. Alluvial/marsh deposits lie below the fill and are composed of alluvial sand deposits, peat, organic silts and clays (marsh deposits) which were identified in deeper portions of some on-Site soil borings. The alluvial/marsh deposits are associated with the original wetlands complex that was present when the native area was altered. This depositional environment is supported by the presence of the sand, organic material, and clay observed in deeper portions of the on-Site soil borings.

No bedrock was documented during the advancement of the previous or current borings at the Site. Damp to wet soil at the capillary fringe to the water table interface was detected at approximately 8 fbg in the Site soil borings.

3.2.3 Hydrogeology

The Site is located approximately 635 feet east of the Gowanus Canal. The canal discharges to Gowanus Bay and Upper New York Bay to the southwest and is a tidally influenced channel, with a tidal cycle of two high tides and two low tides of unequal height each day, that has a vertical tidal range from approximately 4.7 to 5.7 feet. The primary aquifer beneath the Gowanus Canal and surrounding upland areas is identified as the Upper Glacial Aquifer, which is generally a thick sequence of glacial deposits that includes beds of silt, sand and clay associated with alluvial/marsh sediments along coastal areas. The Upper Glacial Aquifer beneath the Site appears to be unconfined. In the Upper Glacial Aquifer, regional groundwater flows to the west/southwest toward the Gowanus Canal. Groundwater from the Site area is not used as a potable water supply in Brooklyn. The depth to groundwater beneath the Site on February 21, 2022, ranged from 9.09 to

13.13 feet below the well top of casing (TOC), and the elevation of the groundwater table surface across the Site ranged from 2.89 feet above mean sea level (amsl) in MW-4 to 4.78 feet amsl in MW-8. Based on the potentiometric surface map contours, groundwater flow direction is generally to the west-southwest.

3.3 Investigation and Remedial History

The Site was developed as early as 1889, when the eastern portion of the Site became occupied by a timber yard and the western portion contained a paint shop. The Site was redeveloped with the most recent warehouse structure on its eastern portion in 1938, and the Site was occupied by the NY Fire Department as an automobile repair garage and by the Telegraph Department for storage. By 1950, the eastern portion of the Site was used by the NY Fire Department Telegraph Bureau, and the western portion was identified as a machine shop. By 1970, the western portion of the Site was identified as having 'unspecified manufacturing' operations, and, by 1982, the South Brooklyn Casket Company occupied the entire Site. The Site was most recently occupied by Mathews International Casket Division, a casket distributor, until 2021, and the two pre-existing warehouse structures were demolished beginning on February 24, 2022. The Site is currently undergoing redevelopment.

Contamination was first identified during a Roux Environmental Engineering and Geology, D.P.C. (Roux) April 2019 Phase II ESA and an IEEG October 2020 Subsurface Investigation, when the chlorinated solvent TCE was identified in soil vapor beneath the Site, and the presence of historic fill to approximately 15 feet bgs and BTEX and petroleum constituents proximal to former gas and oil tanks were identified.

The following narrative provides a remedial history timeline and a brief summary of the available project records to document key investigative and remedial milestones for the Site. Full titles for each of the reports referenced below are provided in Section 8.0 - References.

April 2019 - Roux Environmental Engineering and Geology, D.P.C Phase I ESA

This Phase I ESA established a site history dating back to 1889 by review of Sanborn Maps. The Site had been a warehouse since first noted in 1938 in the historical maps with various commercial and industrial uses which included a paint shop, machine shop, and unspecified manufacturing and auto repair activities. Additionally, oil tanks at the Site were identified on the Sanborn Maps which were not identified through

other means, and an abandoned gasoline tank was reported to be present below the then-existing building slab.

- The Site is listed with a Vapor Encroachment Condition (VEC);
- The Site adjoins a BCP site identified as 563 Sackett Street which has confirmed petroleum and chlorinated solvent impacts in soil vapor;
- Due to the building's date of construction (pre-1931) and materials observed during the site inspection, there is a likelihood that lead-based paint (LBP) and asbestos-containing material (ACM) were utilized in the construction of the building.

April 2019 - Roux Environmental Engineering and Geology, D.P.C Phase II ESA

A subsequent Phase II investigation was conducted by Roux on March 6, 2019. A summary of the findings of the Phase II are presented below:

The geology underlying the Site consisted of 9-to-12-feet of historic fill comprising gravel, brick and glass. Below the fill material, soil was characterized as fine-to-medium sand with clay, silt, and gravel. Groundwater was encountered at approximately 12-to-15-feet bgs, and groundwater was predicted to flow west toward the Gowanus Canal. A total of three (3) soil borings were advanced within the warehouse structure and one (1) soil sample was collected from each boring from 2-foot intervals exhibiting the greatest evidence of impact (via elevated PID detections, odors, or staining). In the absence of observable impact, soil was collected from the 2-foot interval above groundwater from soil borings RXSB-4 and RXSB-6.

- One VOC, 1,2,4-Trimethylbenzene, was detected in soil sample RXSB-5 above the NYSDEC Part 375 Restricted-Residential Soil Cleanup Objectives (RRSCOs) and Commercial Soil Cleanup Objectives (CSCOs).
- Polycyclic aromatic hydrocarbons (PAHs) were detected in all three soil samples with exceedances of RRSCOs and CSCOs identified in RXSB-5 and RXSB-6.

  Polychlorinated biphenyls (PCBs) were not detected in any soil sample.
- Two metals, lead and mercury, were detected in exceedance of RRSCOs in soil sample RXSB-5.
- One (1) sediment sample was collected from a floor drain located in the basement of Lot 28. PAHs and metals were detected in exceedance of RRSCOs and CSCOs in this floor drain sediment sample.

- One (1) composite soil sample was collected for waste characterization. PAHs were detected in exceedance of RRSCOs and CSCOs. TCLP metals were not detected above the USEPA regulatory levels.
- Two (2) temporary well points were installed within soil borings RXSB-5 (RXGW-2) and RXSB-6 (RXGW-3) to 20-feet and-15 feet terminal depths, respectively, each with 10-feet of 1-inch polyvinyl chloride (PVC) well screen. One (1) groundwater sample was collected from each temporary well.
- VOCs, PAHs, and metals (total and dissolved) were detected at concentrations exceeding their respective NYSDEC Ambient Water Quality Standards (AWQS).
- Petroleum related VOCs were detected at concentrations above their respective AWQS in temporary well RXGW-2 (near of the potential location of five (5) oil tanks).
- Elevated metals concentrations are likely attributed to sediment in the groundwater sample and/or are naturally occurring.

One (1) soil vapor point (RXSV-2) was installed to approximately 6-inches below the building slab. Concentrations of various VOCs (PCE, 1,2,4-Trimethylbenzene, etc.) were detected; however, no applicable guidance values exist in NYS for such vapor constituents. Additionally, chlorinated solvents were detected in soil vapor, and one (1) constituent, PCE, has a guidance value assigned by the NYSDOH Soil Vapor Intrusion Guidance Decision Matrices (NYSDOH Matrices); however, in review of the NYSDOH Matrices, the PCE detection does not trigger further remedial monitoring or mitigation.

October 2019 - Impact Environmental Closures, Inc. Supplemental Investigation Report

The Supplemental Investigation Report included the installation of six (6) soil borings to 15 feet bgs and the collection of twelve (12) soil samples, installation of three permanent groundwater monitoring wells to 20 feet bgs with one sample collected from each well, and installation of four (4) semi-permanent sub-slab soil vapor points with one sample collected from each point.

Findings from the soil samples:

- SVOCs, specifically PAHs, were detected at elevated concentrations exceeding their respective CSCOs in the four (4) soil samples collected from borings IEC-SB-1 and IEC-SB-2. Soil sample IECSB-3 (2'-4') contained PAH concentrations exceeding their respective RRSCOs.
- Multiple samples had several pesticides detected at concentrations exceeding UUSCOs; the exceedances included: delta-BHC, lindane, alpha-BHC, beta-BHC, heptachlor, aldrin, endrin,

dieldrin, 4,4'-DDE, 4,4'-DDD, 4,4'-DDT and cis-chlordane. Beta-BHC, Aldrin and Dieldrin exceeded RRSCOs in IECSB-6 (12'-14').

- Several metals, including barium, copper, and mercury, were detected at concentrations exceeding RRSCOs and UUSCOs. Additionally, arsenic, lead and zinc were detected at concentrations exceeding CSCOs in the fill material identified at the Site.
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- Several metals, including barium, copper, and mercury were detected at concentrations exceeding RRSCOs and UUSCOs. Additionally, arsenic, lead and zinc were detected at concentrations exceeding CSCOs in the fill material identified at the Site.
- One (1) exceedance of the NYSDOH Matrices' monitoring/mitigation threshold values was detected in sub-slab soil vapor sample SV-1 for trichloroethene.

February, April, June 2022 - Impact Environmental Engineering and Geology P.LLC. Remedial Investigation Report

The RIR was conducted in February, April and June 2022 in substantial accordance with the Remedial Investigation Work Plan (RIWP) approved by NYSDEC on February 4, 2022

The remedial investigation included:

- a ground-penetrating radar (GPR) survey which identified three anomalies as potential underground storage tanks (USTs);
- the completion of 14 soil borings to further investigate areas outside of previous borings where fill material was identified and performance of field screening and laboratory analysis of a total of up to 41 samples collected at shallow intermediate and deep intervals (up to 15 feet bgs);

- Installation of five (5) soil vapor points throughout the property for the collection of five (5) soil vapor samples to further define the sub-slab and indoor air quality across the Site. Soil vapor samples were collected from approximately 6-feet bgs.
- Deployment of five (5) indoor air samples proximal to each of the soil vapor points and collection of one (1) ambient air sample.

The main contaminants of concern identified at the Site were:

1. Petroleum-related VOCs were identified in soil around SB-11 and SB-12, in groundwater around MW-1 and MW-6, and in soil vapor samples at various locations on the Site. Former USTs are identified for the area that corresponds to the referenced soil boring and groundwater samples;
2. Elevated concentrations of metals and PAHs have been consistently detected in soil and groundwater beneath the Site which is indicative of the presence of historic fill. The area comprising the Site has been filled and was historically identified as a tidal creek with wetlands/lowland marsh areas prior to urban development in the 1800s. Historic fill materials are associated with the Canal, bulkhead and riprap construction as well as the general industrialized development of the area; and
3. Emergent contaminants, perfluorooctanoic acid (PFOA) and perfluoro octane sulfuric acid (PFOS) were not detected in soil samples collected from beneath the Site; however, PFOA and PFOS were detected in the eight (8) groundwater samples collected from beneath the Site. The distribution of PFOA and PFOS at the Site indicate migration onto the Site from an off-site source.

November 2022 RAWP and NYSDEC Decision Document

In accordance with the Remedial Action Work Plan submitted to the NYSDEC on November 8, 2022, and approved on November 14, 2023, the NYSDEC issued the Decision Document for the Site on November 14, 2022, which is summarized below:

1. Remedial Design - The remedial design program consisted of the construction, operation, optimization, maintenance and monitoring of the remedial program. Green remediation principles and techniques were also implemented to the extent feasible per DER-31.

2. Excavation – All soils in the upper two feet which exceeded the Restricted-Residential soil cleanup objectives (RRSCOs) were excavated and transported off-site for disposal. In addition, petroleum source material associated with NYSDEC Spill No. 20-09932 down to approximately 10

feet below the water table, where petroleum-related VOCs exceeded protection of groundwater soil cleanup objectives (PGSCOs) and/or RRSCOs, was excavated and taken off-site for proper disposal. Collection and analysis of confirmation samples at the remedial excavation depth were used to verify that SCOs for the Site had been achieved.

3. Backfill - Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d) was imported to complete backfilling of the excavation and establish the designed grades at the Site.

4. Cover System - The existing site cover will be maintained to provide Restricted-Residential use of the Site. Any future site redevelopment will maintain the existing site cover, which consists either of the structures such as buildings, pavement, sidewalks or soil where the upper two feet of exposed surface soil meets the applicable soil cleanup objectives (SCOs) for Restricted-Residential use. Any fill material brought to the Site will meet the requirements for the identified site use as set forth in 6 NYCRR part 375-6.7(d).

5. Groundwater Extraction & Treatment – The proposed maximum depth of remedial excavation in the petroleum-related source area ranged between 10 to 15 feet below grade (fbg), which was below the static water table (approximately 9 to 13 fbg); therefore, dewatering to facilitate the remedial excavation and to treat petroleum VOCs in the groundwater was conducted. Extracted groundwater was treated and discharged to the local sewer system in compliance with all municipal requirements, including permits from NYCDEP and/or pretreatment if warranted.

6. Institutional Control - Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- The property may be used for Restricted-Residential use as defined in 6 NYCRR Part 375-1.8(g)(2)(ii), Commercial use as defined in 6 NYCRR Part 375-1.8(g)(2)(iii), and Industrial use as defined in 6 NYCRR Part 375-1.8(g)(2)(iv);
- All ECs must be operated and maintained as specified in this SMP;
- All ECs must be inspected at a frequency and in a manner defined in this SMP;
- The use of groundwater underlying the property is prohibited without necessary water quality treatment as determined by the NYSDOH or the NYC Department of Health and Mental Hygiene to render it safe for use as drinking water or for industrial purposes, and the user must first notify and obtain written approval to do so from the Department;

- Groundwater and other environmental or public health monitoring must be performed as defined in this SMP;
- Data and information pertinent to site management must be reported at the frequency and in a manner as defined in this SMP;
- All future activities that will disturb remaining contaminated material must be conducted in accordance with this SMP;
- Monitoring to assess the performance and effectiveness of the remedy must be performed as defined in this SMP;
- Operation, maintenance, monitoring, inspection, and reporting of any mechanical or physical component of the remedy shall be performed as defined in this SMP;
- Access to the Site must be provided to agents, employees or other representatives of the State of New York with reasonable prior notice to the property owner to assure compliance with the restrictions identified by the Environmental Easement;
- The potential for vapor intrusion must be evaluated for any buildings developed in the area within the IC boundaries, and any potential impacts that are identified must be monitored or mitigated;
- Vegetable gardens and farming on the Site are prohibited; and
- An evaluation shall be performed to determine the need for further investigation and remediation should large scale redevelopment occur, if any of the existing structures are demolished, or if the subsurface is otherwise made accessible.

7. Site Management Plan

A Site Management Plan is required, which includes the following:

a. Institutional and Engineering Control Plan that identifies all use restrictions and engineering controls for the Site and details the steps and media-specific requirements necessary to ensure the following institutional and/or engineering controls remain in place and effective:
    - Institutional Controls: Discussed above.

- Engineering Controls: The cover system and the Groundwater Extraction and Treatment discussed above.

This plan includes, but may not be limited to:

- an Excavation Plan which details the provisions for management of future excavations in areas of remaining contamination;
- descriptions of the provisions of the environmental easement including any land use and groundwater water use restrictions;
- a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described above will be placed in any areas where the upper two feet of exposed surface soil exceeded the applicable soil cleanup objectives (SCOs);
- for evaluation of the potential for soil vapor intrusion for any new buildings developed on the Site, including provision for implementing actions recommended to address exposures related to soil vapor intrusion
- provisions for the management and inspection of the identified engineering controls
- maintaining site access controls and Department notification and
- the steps necessary for the periodic reviews and certification of the institutional and/or engineering controls

b. Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:

- monitoring of groundwater to assess the performance and effectiveness of the remedy
- a schedule of monitoring and frequency of submittals to the department and
- monitoring for vapor intrusion for any buildings on the Site, as may be required by the Institutional and Engineering Control Plan

The remedial action objectives for this Site per the Decision Document are as follows:

3.4 Remedial Action Objectives

The Remedial Action Objectives (RAOs) for the Site as listed in the Decision Document dated November 2022 are as follows:

Groundwater

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil

RAOs for Public Health Protection

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

RAOs for Environmental Protection

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

Soil Vapor

RAOs for Public Health Protection

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

3.5 Remaining Contamination

3.5.1 Soil

A total of approximately 14,262.42 tons of material was excavated and removed from the Site between November 30, 2022, and June 21, 2023. Approximately 12,962.24 tons of material was disposed of at Bayshore Soil Management LLC of Keasbey, NJ, 1,112.53 tons of material was disposed of at Conestoga Land Fill of Morgantown Pa and 187.65 tons of material was disposed of at Clean Earth of Kearn, NJ.

Three (3) underground storage tanks (USTs) were discovered during remedial activities and removed per the NYSDEC-approved RAWP. Tank 1 was a 5,000-gallon UST located on the northwestern portion of the Site, Tank 2 was a 1,080-gallon UST located on the southwestern portion of the Site and Tank 3 was a 5,000-gallon UST located centrally towards the southern property boundary. Three (3) bottom samples were taken from both *Tank 1* and *Tank 3* (one per five [5] linear feet) and two (2) from *Tank 2*, beneath each UST in addition to side wall samples. The samples were submitted to Alpha Analytical (Alpha) of Westborough Massachusetts an Environmental Laboratory Approval Program (ELAP)_ Certified laboratory (Lab ID No. 10854), for analysis of CP-51 listed VOCs (EPA Method 8260C) and SVOCs (EPA Method 8270D). The results of the UST bottom samples indicated the presence of petroleum hydrocarbons associated with the USTs in the surrounding soil. The petroleum-contaminated soil beneath the USTs was further excavated and confirmation soil samples collected to document that soil met the NYSDEC Part 375 Protection of Groundwater (PGW) Soil Cleanup Objectives (SCOs) and the Track 4 Restricted-Residential (RR) SCOs.

In addition to the petroleum source area excavation, four (4) hot spots were excavated to remove contaminants above the NYSDEC Part 375 PGW SCOs. Two (2) hotspots containing arsenic contamination (EP-2 and EP-22) and were excavated to between 6-8 fbg (SB-2)_ and 15-17 fbg (SB-22) and two (2) hotspots containing PCB contamination (EP-8 and EP-30) were excavated to between 9-10 fbg (SB-30) and 15-17 fbg (EP-8)- Confirmation soil samples collected from the hot spot areas document that soil met the NYSDEC Part 375 PGW SCOs and the Track 4 RR SCOs.

The remaining areas of the Site were excavated to approximately 9 feet below the ground surface (bgs) and related confirmation soil samples were collected to document that soil met the NYSDEC Part 375 Track 4 RR SCOs.

3.5.2 Groundwater

Previous investigations of groundwater beneath the Site have documented concentrations of petroleum-related VOCs above the Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS). These exceedances were primarily detected within MW-1, MW-6, MW-7, each located on the southern portion of the Site, and in MW-8, which is located in the central portion of the Site. These wells were located within the petroleum source area. The depth to groundwater beneath the Site is approximately 9 to 13 fbg, and the groundwater flow is to the west-southwest.

Monitoring wells MW-1 through MW-8 were abandoned in accordance with the NYSDEC CP-43 Groundwater Monitoring Well Decommissioning Policy prior to the start of intrusive work associated with the remedial action. A total of 219,620 gallons of groundwater was extracted, treated and the effluent discharged to the combined sewer under a NYCDEP discharge permit during the duration of dewatering activities.

New monitoring wells MW-9 and MW-10 were installed to evaluate the groundwater conditions associated with the petroleum source area. These wells were installed at a hydraulically downgradient location within the petroleum source area on the southern central portion of the Site.

On June 9, 2023, groundwater samples were collected from the newly installed monitoring wells, MW-9 and MW-10, to evaluate post-remedial action groundwater conditions. The samples were submitted to Alpha for analysis of CP-51 Table 2 List VOCs in accordance with USEPA Method 8260C. The results indicate that benzene was detected in MW-9 above the NYSDEC AWQS.

The table below provides a summary of the groundwater analytical results as compared to the Technical and Operational Guidance Series (TOGS) 1.1.1 Ambient Water Quality Standards (AWQS).

SAMPLE ID			MW-9		MW-10	
SAMPLING DATE			6/9/2023		6/9/2023	
LAB SAMPLE ID			L2332652-01		L2332652-02	
SAMPLE TYPE			WATER		WATER	
	NY-AWQS	Units	Results	Qual	Results	Qual
Benzene	1	ug/l	13		0.5	U
Toluene	5	ug/l	0.81	J	2.5	U
Ethylbenzene	5	ug/l	1.2	J	2.5	U
Methyl tert butyl ether	10	ug/l	2.5	U	2.5	U
p/m-Xylene	5	ug/l	1.8	J	2.5	U
o-Xylene	5	ug/l	0.98	J	2.5	U
n-Butylbenzene	5	ug/l	2.5	U	2.5	U
sec-Butylbenzene	5	ug/l	2.5	U	2.5	U
tert-Butylbenzene	5	ug/l	2.5	U	2.5	U
Isopropylbenzene	5	ug/l	4.6		2.5	U
p-Isopropyltoluene	5	ug/l	2.5	U	2.5	U
Naphthalene	10	ug/l	2.5	U	2.5	U
n-Propylbenzene	5	ug/l	2.9		2.5	U
1,3,5-Trimethylbenzene	5	ug/l	2.5	U	2.5	U
1,2,4-Trimethylbenzene	5	ug/l	0.78	J	2.5	U

3.5.3 Soil Vapor

A soil vapor intrusion evaluation was completed during the Remedial Investigation. Fourteen (14) of the VOCs detected in soil vapor samples are petroleum-related and include: benzene, toluene, ethylbenzene, o-xylene and m,p-xylene (BTEX), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, p-ethyl toluene, n-hexane, cyclohexane, n-heptane, styrene, isopropanol and propylene.

The migration of soil vapor from on-Site and potential off-site sources into the new building was mitigated by the installation of a combination of Stego Wrap® 20-mil vapor barrier beneath the building slab and Grace PrePrufe® waterproofing membrane within the elevator pit and the exterior sidewalls along Union Street along 3rd Avenue.

The soil vapor samples collected during the remedial investigation identified the presence of petroleum-related VOCs in the samples collected. It is anticipated that these detections of VOCs are related to the petroleum source area that was excavated and dewatered as part of the remedial action.

The table below summarize the results of RI soil vapor results prior to completion of the remedial action.

Sample ID	NYSDOH Matrices Indoor Air	NYSDOH Matrices Soil Vapor	SV-5		SV-6		SV-7		SV-8		SV-9	
York ID			22B1152-07		22B1152-03		22B1152-05		22B1152-09		22B1152-01	
Sampling Date			2/23/2022		2/23/2022		2/23/2022		2/23/2022		2/23/2022	
Client Matrix			Soil Vapor		Soil Vapor		Soil Vapor		Soil Vapor		Soil Vapor	
Compound			Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Volatile Organics, EPA TO15	ug/m3	ug/m3	ug/m3		ug/m3		ug/m3		ug/m3		ug/m3	
Dilution Factor	~	~	19.64		1.479		33.4		19.03		1.714	
1,2,4-Trimethylbenzene	~	~	**19**	**D**	**27**	**D**	**19**	**D**	**19**	**D**	**14**	**D**
1,3,5-Trimethylbenzene	~	~	**5.8**	**D**	**11**	**D**	**8.2**	**J**	**9.4**	**J**	**3.9**	**D**
Benzene	~	~	**4.3**	**D**	**2.30**	**D**	**5.3**	**D**	**6.1**	**D**	**2.1**	**D**
Cyclohexane	~	~	**2.7**	**D**	**0.56**	**D**	5.7	U	6.6	U	**11**	**D**
Ethyl Benzene	~	~	**12**	**D**	**11**	**D**	**16**	**D**	**17**	**D**	**8.8**	**D**
Isopropanol	~	~	**4.1**	**D**	**2.6**	**D**	8.2	U	9.4	U	**1.5**	**D**
n-Heptane	~	~	**8.7**	**D**	**4.0**	**D**	**12**	**D**	**8.6**	**D**	**4.1**	**D**
n-Hexane	~	~	**8.9**	**D**	**3.6**	**D**	**7.1**	**D**	**6.7**	**D**	**2.1**	**D**
o-Xylene	~	~	**13**	**D**	**16**	**D**	**17**	**D**	**17**	**D**	**13**	**D**
p- & m- Xylenes	~	~	**45**	**D**	**53**	**D**	**60**	**D**	**64**	**D**	**44**	**D**
p-Ethyltoluene	~	~	**19**	**D**	**34**	**D**	**21**	**D**	**21**	**D**	**15**	**D**
Propylene	~	~	**21**	**D**	**4.5**	**D**	**13**	**D**	**3.3**	**J**	0.29	U
Styrene	~	~	3.3	U	**0.88**	**D**	7.1	U	8.1	U	**0.73**	**D**
Toluene	~	~	**1,200**	**D**	**54**	**D**	**3,300**	**D**	**2,100**	**D**	**37**	**D**
NOTES:												
Any Regulatory Exceedences are color coded by Regulation												
Bold - Analyte was detected												
Q is the Qualifier Column with definitions as follows:												
D=result is from an analysis that required a dilution												
J=analyte detected at or above the MDL (method detection limit) but below the RL (Reporting Limit) - data is estimated												
U=analyte not detected at or above the level indicated												
~=this indicates that no regulatory limit has been established for this analyte												

4.0 INSTITUTIONAL AND ENGINEERING CONTROL PLAN

4.1 General

Because remaining contamination exists at the Site, Institutional Controls (ICs) and Engineering Controls (ECs) are required to protect human health and the environment. The IC/EC Plan described within the SMP provides the procedures for the implementation and management of all IC/ECs at the Site. The IC/EC Plan is one component of the SMP and is subject to revision by the NYSDEC project manager.

5.0 MONITORING AND SAMPLING PLAN

5.1 Post-Remediation Media Monitoring and Sampling

5.1.1 Soil Vapor/Indoor Air Assessment

Although not identified as an engineering control, a mechanical ventilation system designed for the sub-grade parking garage will control sub-grade airflow below the first floor/ground level occupied space. The parking garage mechanical system at the Site will evacuate vapors/gases that collect from vehicles in the garage space at 21,000 cubic feet per minute (CFM) and 5.6 air changes per hour. This mechanical ventilation system will provide an air break beneath the at-grade, street-level retail spaces, utility rooms, detention tank, restrooms, residential tenant bike storage room, residential tenant mail and package rooms, leasing office and the residential lobby to access residential units starting on the second floor.

The Site Cap with vapor barrier performance monitoring will be accomplished by the collection of seven (7) sub-slab soil vapor samples via Vapor Pins® which will be installed through the sub slab of the new building within the parking garage, prior to the building being occupied, as practicable, in conjunction with the collection of seven (7) indoor air samples co-located with the soil vapor sample locations, as well as three (3) indoor air samples from the second floor where residential units begin, and an outdoor ambient air sample in accordance with the NYSDOH “Guidance for Evaluating Soil Vapor Intrusion in the State of New York” (October 2006) and the May 2017: Updates to Soil Vapor /Indoor Air Decision Matrices. Refer to Figures 4a and 4b for proposed sample locations.

It should be noted that the groundwater table interface at the Site range from 9.09 to 13.13 fbg in elevation during remedial and construction activities, which is proximate to the new building subgrade slab at approximately 10 fbg. The water table elevation has the potential to interfere with soil vapor point

installation and sample collection. The NYSDEC will be notified of potential changes to this performance monitoring protocol.

Soil vapor intrusion sampling will be performed once during the 2024-25 heating season to assess the performance of the remedy.

The soil vapor/indoor air sampling event will include the following:

- Collection of seven (7) soil vapor samples from each soil vapor point to be designated as SV-10 through SV-16. One (1) duplicated sample will be collected as part of the sampling event. Vacuum measurements will also be collected at each location and recorded.
- Seven (7) indoor air samples will be collected at locations proximal to each of the seven (7) sub-slab soil vapor points to be designated as IA-10 through IA-16.
- Three (3) indoor air samples will be collected on the second floor within residential units to be designated as IA-17 through IA-19.
- One (1) outdoor ambient air sample will be collected to establish background during the sampling event.
- The 20 samples will be collected for a period of 24 hours.
- Sample analysis will be USEPA TO-15 for VOCs analysis.

.

The soil vapor monitoring points (Vapor Pins) will be located at least 10 feet from exterior walls of the building to minimize the potential for infiltration of outdoor air into the vadose zone. A 1.5-inch diameter hole will be drilled approximately 1.75-inches down into the slab. Then a 5/8-inch diameter hole will be installed through the remainder of the slab. Once fully penetrated, the vapor pin and silicone sleeve are immediately installed using a vapor pin installation tool (impact protection) and dead-blow hammer. Once installed, the silicone sleeve creates an airtight seal, and the vapor pin is fitted with a protective cap to eliminate the potential for vapor migration into the building. The stainless-steel secure cover is then place over the vapor pin, and threads directly onto the vapor pin for a secure and flush mounted finish. A seal test will be performed on each implant, following the protocols and procedures cited in Section 2.7.5 of the NYSDOH October 2006, Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York document. Helium gas and a Model MGD-2002 Multi-Gas Leak Detector (or similar) will be utilized for said seal test. A competent seal is considered achieved if 10% or less helium is detected.

Prior to sampling, the soil vapor points will be allowed to equilibrate for a minimum of 24 hours. The vapor points will then be purged of a minimum of three tube volumes of soil vapor, and the flow rates for both purging and sample collection will not exceed 0.2 liters per minute to ensure against outdoor air infiltration during sampling. The sampling flow rate will be controlled by an inlet flow regulator attached to the Summa canisters. Sampling will occur for a duration of **twenty-four hours** and soil vapor samples will be contained in a laboratory prepared, Summa Canister which will be certified clean. The soil vapor samples will be sampled in accordance with United States Environmental Protection Agency (USEPA) Test Method TO-15 for VOCs.

Indoor air quality sample locations will be collected proximal to the proposed soil vapor sample locations. Indoor Air sample acquisition will be performed utilizing 2.75-liter laboratory-supplied Summa canisters, or equivalent; each canister is to be equipped with a laboratory-prepared flow regulator set below 0.2 liters per minute per NYSDOH guidance. Each canister will be set atop an approximately three-foot tall stand, tabletop or other infrastructure. This sample collection elevation has been selected to represent air quality within typical breathing zone(s) (between three and five feet above slab grade, as specified within the NYSDOH Soil Vapor Intrusion guidance document, most recently amended in 2017).

The air samples will be analyzed in accordance with United States Environmental Protection Agency (USEPA) Test Method TO-15 for VOCs. The analytical results will be compared to the May 2017 revised decision matrices in the NYSDOH Final Guidance Document.

One (1) outdoor ambient air sample will also be collected during the soil vapor and indoor air testing and analyzed in accordance with United States Environmental Protection Agency (USEPA) Test Method TO-15 for VOCs.

6.0 REPORTING REQUIREMENTS

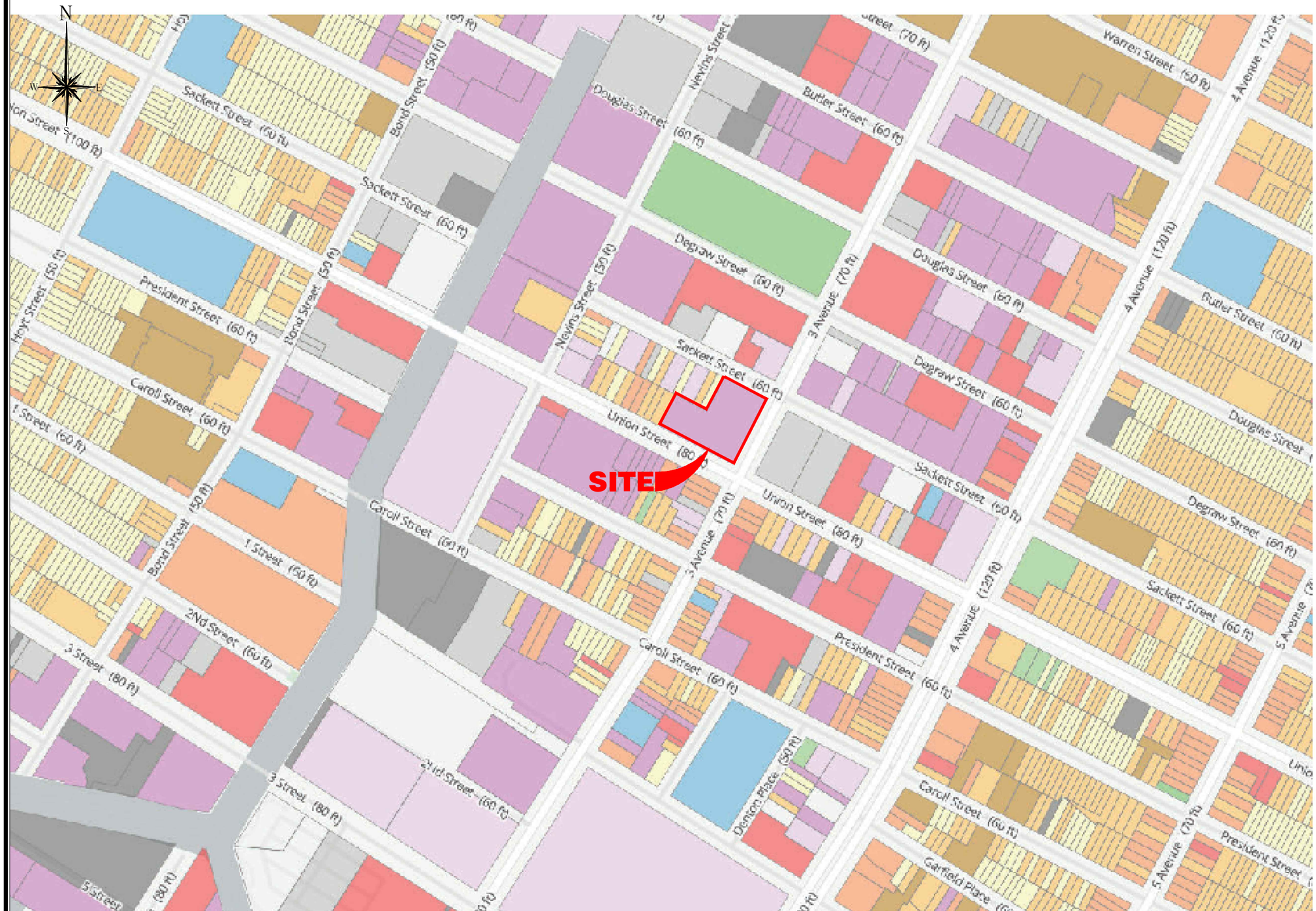
The soil vapor intrusion monitoring event will be conducted by a qualified environmental professional as defined in 6 NYCRR Part 375. All applicable inspection forms and other records, including media sampling data, generated for the Site during the sample event will be provided in electronic format to the NYSDEC in accordance with the SMP.

FIGURES

585 Union Street, Brooklyn, NY

Soil Vapor Intrusion Investigation Plan
NYSDEC BCP #C224329

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599



IMPACT ENVIRONMENTAL
170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800 FAX (631) 269-1599

1000 PAGE AVENUE
LYNDHURST, NEW JERSEY 07071

TITLE:

FIGURE 1:
SITE LOCATION MAP

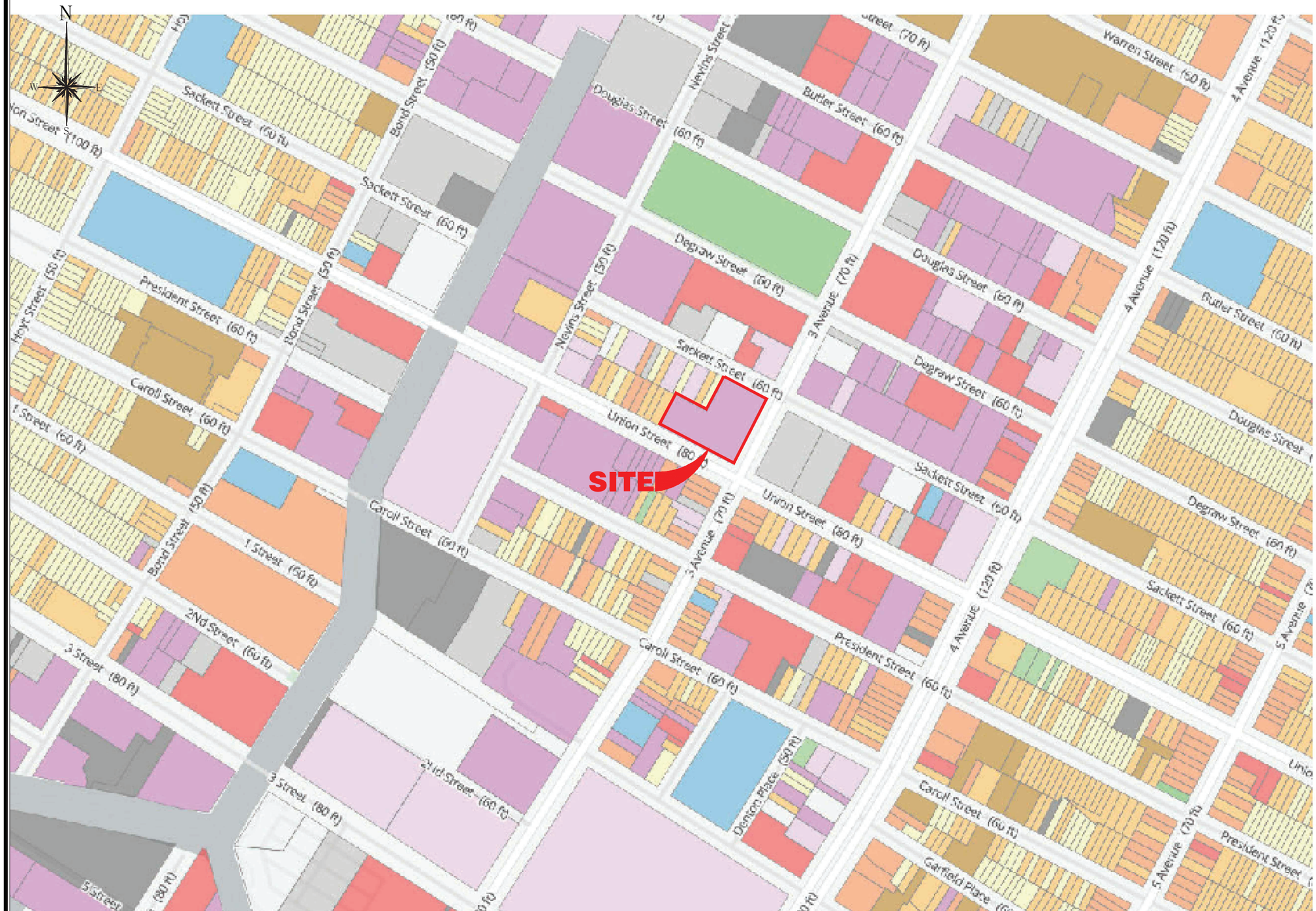
SITE:

577-599 UNION STREET
BROOKLYN, NY

SHEET NO.
FIGURE 1

PROJECT NO.	14729
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	04/13/2022
SCALE:	NTS

REVISIONS	
NO:	DATE:



Zoning and Land Use

Tax Lots

- One & Two Family Buildings
- Multi-Family Walk-Up Buildings
- Multi-Family Elevator Buildings
- Mixed Residential & Commercial Buildings
- Commercial & Office Buildings
- Industrial & Manufacturing
- Transportation & Utility
- Public Facilities & Institutions
- Open Space & Outdoor Recreation
- Parking Facilities
- Vacant Land
- Other

IMPACT ENVIRONMENTAL
170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800 FAX (631) 269-1599

1000 PAGE AVENUE
LYNDHURST, NEW JERSEY 07071

TITLE:

Site Boundary Map

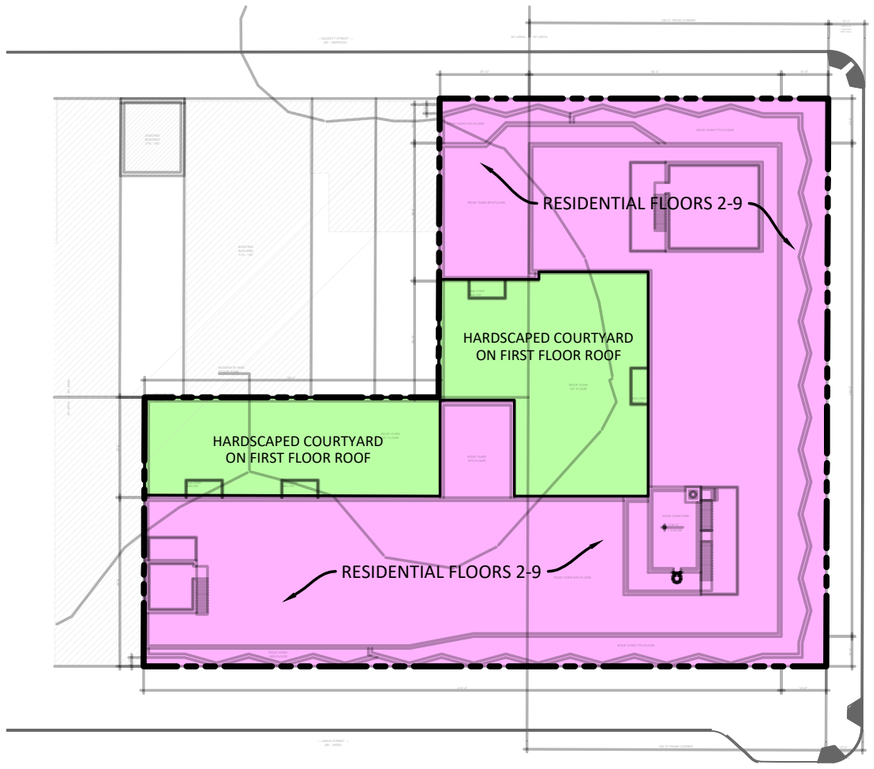
SITE:

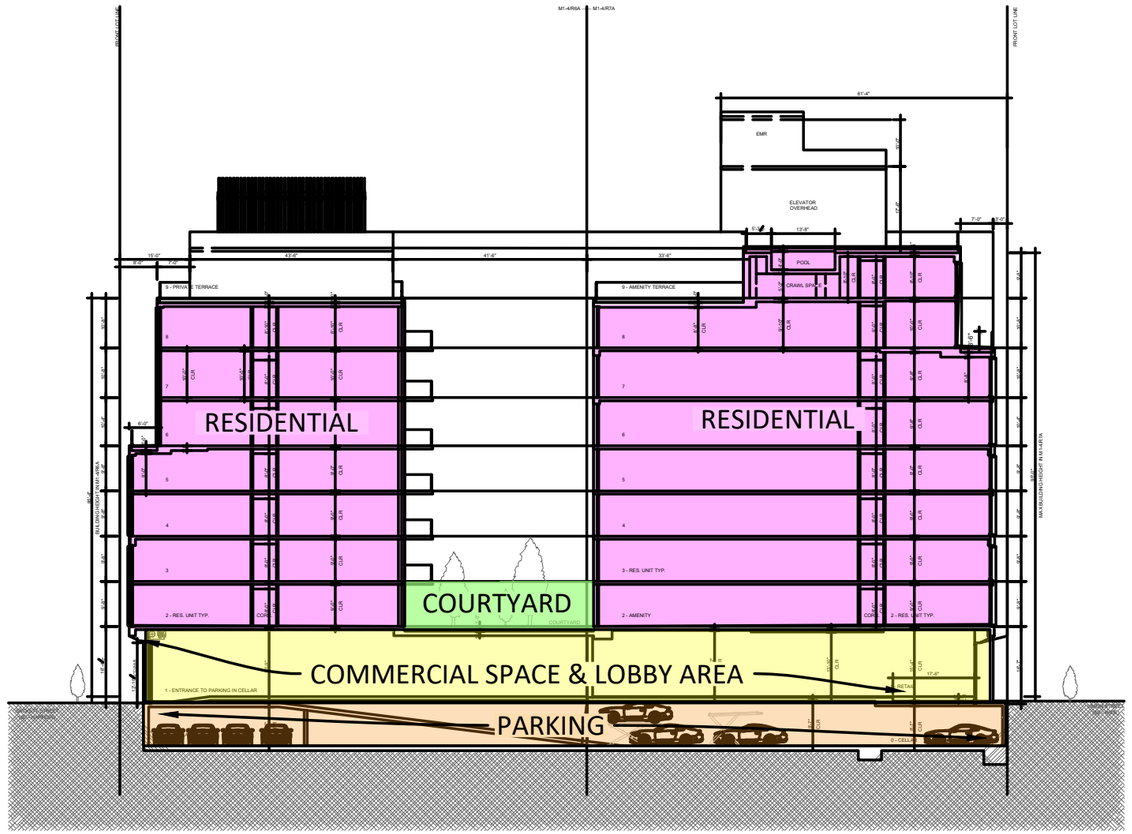
577-599 UNION STREET
BROOKLYN, NY

SHEET NO.
FIGURE 2

PROJECT NO.	14729
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	JDF
DATE:	6/30/2022
SCALE:	NTS

REVISIONS	
NO:	DATE:





NOTES:

1. REDEVELOPMENT UNERLAYS BASED ON "ROOF BULKHEAD PLAN" DRAWING NO. A-112.00, DATED 03/22/2022 AND "BUILDING SECTIONS", DRAWING NO. A-350.00, DATED 03/22/2022.

LEGEND

- RESIDENTIAL
- COURTYARD
- COMMERCIAL/LOBBY
- PARKING

Figure 3: Site Layout

585 UNION STREET
BROOKLYN, NY
BLOCK 433, LOT 28

SHEET NO.
Figure 3

PROJECT NO.	14729
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	06/28/2022
SCALE:	N.T.S.

REVISIONS

IMPACT ENVIRONMENTAL
170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800 FAX (631) 269-1599

1000 PAGE AVENUE
LYNDHURST, NEW JERSEY 07071

NOTES:
1. BASE MAP BOUNDARY BASED ON CELLAR FLOOR DEVELOPMENT PLANS FROM GENERAL CONTRACTOR.

LEGEND

- PROPERTY BOUNDARY
- SOIL VAPOR POINT
- INDOOR AIR POINT
- AMBIENT AIR POINT

0 25' 50'

Figure 4a: Cellar Soil Vapor/Indoor Air Sample Locations

585 UNION STREET
BROOKLYN, NY
BLOCK 433, LOT 28

SHEET NO.
Figure 04a

PROJECT NO.	14729
DESIGNED BY:	NS
DRAWN BY:	NS
CHECKED BY:	DP
DATE:	07/31/2023
SCALE:	1" = 25'

REVISIONS

IMPACT ENVIRONMENTAL
170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800 FAX (631) 269-1599

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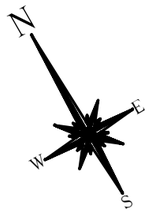

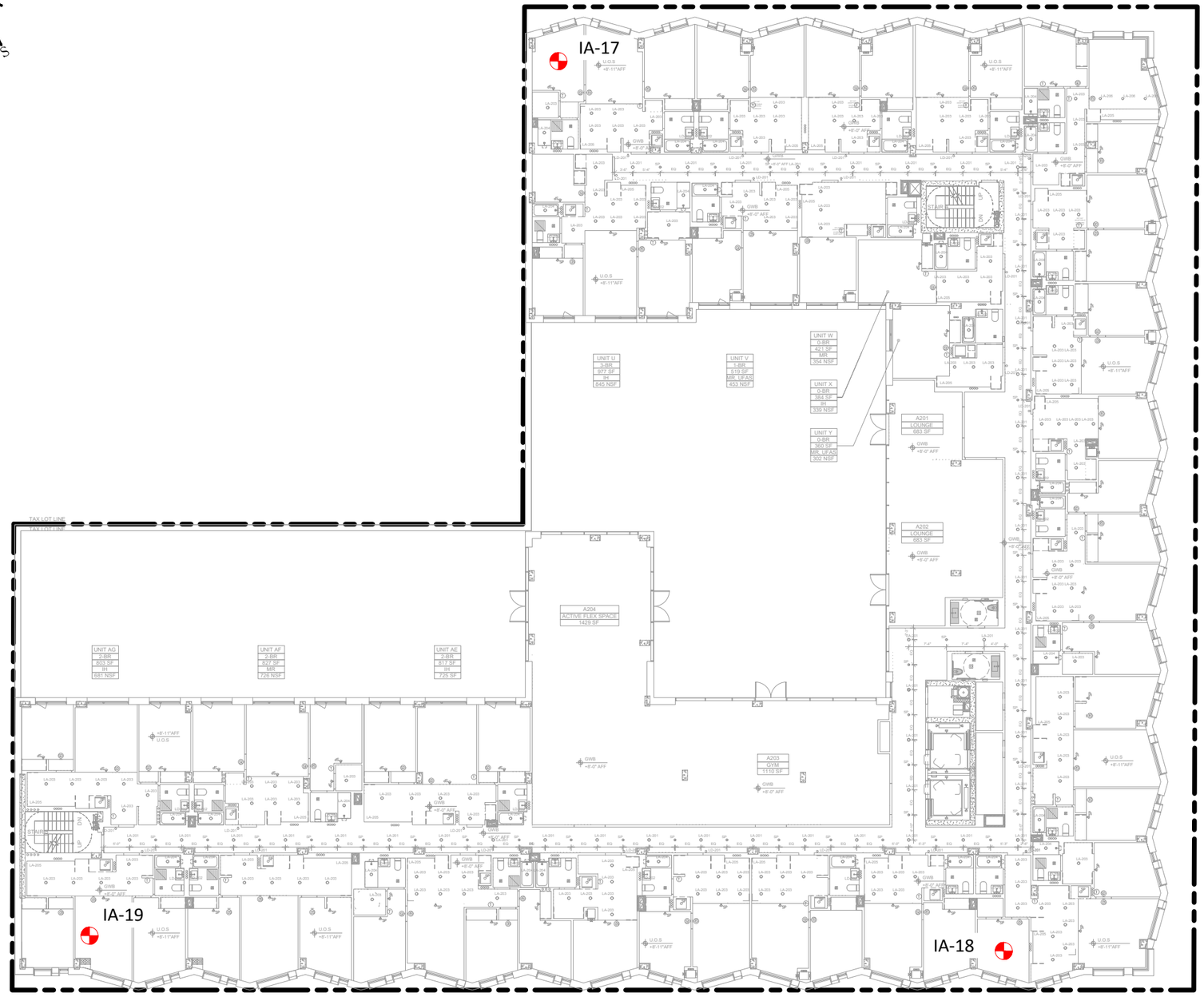

0 25' 50'

LEGEND

PROPERTY BOUNDARY

INDOOR AIR POINT

Figure 4b:
Second Floor Indoor Air Sample Locations

585 UNION STREET
BROOKLYN, NY
BLOCK 433, LOT 28

SHEET NO.
Figure 4B

PROJECT NO.	14729
DESIGNED BY:	AB
DRAWN BY:	AB
CHECKED BY:	DP
DATE:	2/24/2025
SCALE:	1" = 25'

REVISIONS

IMPACT ENVIRONMENTAL
170 KEYLAND COURT
BOHEMIA, NEW YORK 11716
TEL (631) 269-8800 FAX (631) 269-1599

Appendix 1

SVI Forms

Soil Vapor Intrusion Investigation Plan
NYSDEC BCP #C224329

IMPACT ENVIRONMENTAL
170 Keyland Court
Bohemia, New York 11716
TEL: (631) 268-8800
FAX: (631) 269-1599

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name _____ Date/Time Prepared _____

Preparer's Affiliation _____ Phone No._____

Purpose of Investigation_____

1. OCCUPANT:

Interviewed: Y / N

Last Name: _____ First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

Number of Occupants/persons at this location _____ Age of Occupants _____

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: Y / N

Last Name: _____First Name: _____

Address: _____

County: _____

Home Phone: _____ Office Phone: _____

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

Residential	School	Commercial/Multi-use
Industrial	Church	Other: _____

If the property is residential, type? (Circle appropriate response)

Ranch	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? _____

If the property is commercial, type?

Business Type(s) _____

Does it include residences (i.e., multi-use)? Y / N If yes, how many? _____

Other characteristics:

Number of floors_____ Building age_____

Is the building insulated? Y / N How air tight? Tight / Average / Not Tight

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

_____

_____

_____

Airflow near source

_____

_____

_____

Outdoor air infiltration

_____

_____

_____

Infiltration into air ducts

_____

_____

_____

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	concrete	stone	brick
b. Basement type:	full	crawlspace	slab	other _____
c. Basement floor:	concrete	dirt	stone	other _____
d. Basement floor:	uncovered	covered	covered with _____	
e. Concrete floor:	unsealed	sealed	sealed with _____	
f. Foundation walls:	poured	block	stone	other _____
g. Foundation walls:	unsealed	sealed	sealed with _____	
h. The basement is:	wet	damp	dry	moldy
i. The basement is:	finished	unfinished	partially finished	
j. Sump present?	Y / N			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: _____(feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

_____

_____

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: _____

Boiler/furnace located in:	Basement	Outdoors	Main Floor	Other_____
Air conditioning:	Central Air	Window units	Open Windows	None

Are there air distribution ducts present? Y / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

_____

_____

_____

_____

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	_____
1st Floor	_____
2nd Floor	_____
3rd Floor	_____
4th Floor	_____

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y / N

b. Does the garage have a separate heating unit? Y / N / NA

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) Y / N / NA Please specify_____

d. Has the building ever had a fire? Y / N When?_____

e. Is a kerosene or unvented gas space heater present? Y / N Where? _____

f. Is there a workshop or hobby/craft area? Y / N Where & Type? _____

g. Is there smoking in the building? Y / N How frequently? _____

h. Have cleaning products been used recently? Y / N When & Type? _____

i. Have cosmetic products been used recently? Y / N When & Type? _____

j. Has painting/staining been done in the last 6 months? Y / N Where & When? _____

k. Is there new carpet, drapes or other textiles? Y / N Where & When? _____

l. Have air fresheners been used recently? Y / N When & Type? _____

m. Is there a kitchen exhaust fan? Y / N If yes, where vented?_____

n. Is there a bathroom exhaust fan? Y / N If yes, where vented?_____

o. Is there a clothes dryer? Y / N If yes, is it vented outside? Y / N

p. Has there been a pesticide application? Y / N When & Type?_____

Are there odors in the building? Y / N
If yes, please describe: _____

Do any of the building occupants use solvents at work? Y / N
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? _____

If yes, are their clothes washed at work? Y / N

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly) No
Yes, use dry-cleaning infrequently (monthly or less) Unknown
Yes, work at a dry-cleaning service

Is there a radon mitigation system for the building/structure? Y / N Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	Public Water	Drilled Well	Driven Well	Dug Well	Other: _____
Sewage Disposal:	Public Sewer	Septic Tank	Leach Field	Dry Well	Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency)

a. Provide reasons why relocation is recommended: _____

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

First Floor:

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.

13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: _____

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo** Y / N

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**
** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

IMPACT ENVIRONMENTAL CLOSURES, INC.
170 Keyland Court
Bohemia, New York 11716
631.269.8800 telephone
631.269.1599 facsimile
www.impactenvironmental.com

Project #:	Date:	Pg. of
Client:		Staff:
Site:		
Task:		

Sample ID	**Sample Type** (IA, SS, A)	**Location** (e.g., basement, etc.)	**Slab Thickness (in.)**	**Can ID**	**Flow ID**	**PID Reading (ppm)**	**Purge Vol.**	**Start/End Time**	**Start/End Press.**	**Sample Duration**	**Misc. Observation Notes**

*IA = Indoor Air, SS = Sub-Slab, and A = Ambient