Soil Vapor Intrusion Investigation Work Plan

Operable Unit 4 and Operable Unit 5
(OU-4 and OU-5)
ExxonMobil Greenpoint
Petroleum Remediation Project
Site Code: S224150
Greenpoint, Brooklyn, New York

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Acronym List

Acronym	Definition
AAR	Alternatives Analysis Report
BP	British Petroleum
CFA	Code of Federal Regulations
CSP	Conceptual Site Plan
CVOC	Chlorinated Volatile Organic Compound
EDD	Electronic Data Deliverable
ELAP	Environmental Laboratory Approved Program
EMGPRP	ExxonMobil Greenpoint Petroleum Remediation Project
FRP-VIWP	Former Refinery Property Vapor Intrusion Work Plan
HASP	Health and Safety Plan
HNP	Hazard Notification Plan
IRM	Interim Remedial Measure
LEL	Lower Explosion Limit
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OMM	Operation, Monitoring, and Maintenance
ORS	Off-Site Free-Product Recovery System
OU	Operable Unit
QAPP	Quality Assurance Project Plan
RCS	Former Brooklyn Terminal Free-Product Recovery and Containment System
SQ FT	Square Feet
SSDS	Sub-Slab Depressurization System
SVI	Soil Vapor Intrusion
SWO	Stop Work Order
USEPA	United States Environmental Protection Agency
VER	Vacuum-Enhanced Recovery
VOC	Volatile Organic Compound
WC	Water Column

1. Introduction

On behalf of ExxonMobil Oil Corporation (ExxonMobil), Roux Environmental Engineering and Geology, D.P.C. (Roux) has prepared this Soil Vapor Intrusion Investigation Work Plan (Work Plan) for Operable Unit 4 and Operable Unit 5 (OU-4 and OU-5) located within the ExxonMobil Greenpoint Petroleum Remediation Project (EMGPRP) Site in the Greenpoint section of Brooklyn, New York.

The EMGPRP includes the environmental investigation, monitoring, and remediation activities that ExxonMobil is performing within the project area (Site), shown on Figure 1, as defined in the Consent Decree between the State of New York and ExxonMobil, filed on March 1, 2011, in the United States District Court, Eastern District of New York (Consent Decree).

On June 5, 2025, the New York State Department of Environmental Conservation (NYSDEC) provided ExxonMobil with comments regarding the Fourth Quarter of 2024 Soil Vapor Report, submitted to the NYSDEC on April 8, 2025. Following receipt of NYSDEC comments, ExxonMobil provided a response on July 9, 2025, via email correspondence. Additional comments were provided by the NYSDEC in a comment letter dated September 19, 2025. A meeting between ExxonMobil, NYSDEC, and New York State Department of Health (NYSDOH) occurred on October 29, 2025, to discuss NYSDEC's comment letters and discuss proposed next steps. As a result of these communications, Roux has prepared this Work Plan at the request of the NYSDEC and NYSDOH in order to compare soil vapor and indoor concentrations within OU-4 and OU-5 to the matrices included in the NYSDOH's Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006) with updates (SVI Guidance). For reference, NYSDEC correspondence is provided in Appendix A.

This Work Plan is separated into the following sections:

Section 2: Provides a summary of Site physical description;

Section 3: Provides a summary of prior soil vapor investigations and existing mitigation measures;

Section 4: Provides a summary of the SVI investigation approach; and

Section 5: Provides a summary of the proposed schedule.

Figures and appendices documenting and summarizing the activities are attached at the end of this Work Plan.

2. Physical Description

2.1 EMGPRP Site Description

The EMGPRP Site is located within a major industrial area of the Greenpoint neighborhood in Brooklyn, New York, covering an area of approximately 174 acres, as shown in Figure 1. The Site is administratively divided into eight, geographically based, operable units (OU-1 through OU-8) as shown in Figure 2. The definition of the OUs at the Site was developed considering a variety of factors, including, but not limited to, geography and media, as described in the revised Conceptual Site Plan (CSP) submitted to the NYSDEC on February 3, 2012 and approved on January 17, 2013. The area in which ExxonMobil historically conducted petroleum refining, storage, and distribution operations comprises approximately 59 acres within the northern portion of the Site. This area is referred to as the Historical Footprint, as defined in the Consent Decree.

Remediation of the EMGPRP has been ongoing by ExxonMobil since 1979 as described in the CSP and quarterly and annual reports. Currently, active remediation primarily consists of the operation of three remediation systems comprised of three facilities including: 1) the Former Brooklyn Terminal Free-Product Recovery and Contaminant System (RCS), 2) the Off-Site Free Product Recovery System (ORS); and 3) the Soil Vapor Extraction System (SVE). These three remediation systems are further described in the Five-Year Recovery System Evaluation Report 2018-2022, submitted to the NYSDEC on June 13, 2023, and the CSP. Reports documenting the progress of each remediation system are submitted to the NYSDEC on a quarterly and annual basis.

2.2 OU-4 and OU-5 Description

The locations of OU-4 and OU-5 are shown in Figure 2. Both of these OUs are located within the Historical Footprint portion of the Site with the exception of a small parcel (Block 2584, Lot 15) in the northwest corner of OU-4 (Figures 1 and 3). Currently, the buildings located within OU-4 and OU-5 are zoned for industrial and commercial use, and are currently operating as warehouses, garages, and/or office spaces. These buildings are constructed as slab on grade foundations and do not contain basements.

OU-4 and OU-5 are located entirely on third-party commercial and industrial properties. A summary of the operational use for each building located within OU-4 and OU-5 is provided below and in Figure 3.

Existing structures and their operational status within OU-4 are provided below:

- Block 2584, Lot 1 – Industrial warehouse and offices
- Block 2585, Lot 1 – Storage shed and offices
- Block 2607, Lot 6 – Movie studios, offices, workshops, and warehouse storage
- Block 2612, Lot 1 – Former Brooklyn Terminal Recovery and Containment System (RCS)
    - Scheduled to be demolished in Fourth Quarter of 2026

Existing structures and their operational status within OU-5 are provided below:

- Block 2608, Lot 25 – Movie studios, offices, workshops, and warehouse storage
- Block 2612, Lot 125 – Warehouse and offices

- Block 2612, Lot 133 – Garages and offices
- Block 2612, Lot 136 – Offices
- Block 2612, Lot 140 – Warehouse and offices
- Block 2612, Lot 145 – Garages and offices

2.3 OU-4 and OU-5 Surrounding Land Use

The EMGPRP Site is located within a major industrial area of the Greenpoint neighborhood of Brooklyn, New York. As shown in Figures 1 and 2, in addition to OUs 1, 2, 3, 6, and 7, there are three separate adjacent sites bordering OU-4 and OU-5, identified as follows:

- The Kinder Morgan Terminal (formerly known as the British Petroleum [BP] Terminal);
- The Meeker Avenue Plume Superfund Site (multiple source properties identified in the vicinity of the intersection of Norman Avenue and Kingsland Avenue, as well as the area immediately south of the Site); and
- Newtown Creek.

A description and history of these three additional, adjacent sites is provided in the CSP. It is important to note that these three additional sites are not part of the EMGPRP, and that investigation and remediation activities at these sites are under the active management of third parties.

3. Soil Vapor Investigation and Mitigation Summary

Soil vapor investigation and monitoring activities within the EMGPRP Site have been conducted by Roux, on behalf of ExxonMobil, since 2006. Site-specific soil vapor screening criteria for benzene (170,000 parts per billion by volume [ppbv] in the commercial area and 120 ppbv in the residential area) and methane (50,000 parts per million by volume [ppmv] in the commercial area), were developed based on investigation results as described in the Soil Vapor Investigation Report dated February 6, 2006. Soil Vapor monitoring activities have been and continue to be performed in accordance with the NYSDEC approved Former Refinery Vapor Intrusion Work Plan (FR-VIWP) which was submitted to the NYSDEC on May 27, 2011 and approved on October 3, 2011, and the Hazard Notification Plan (HNP), submitted to the NYSDEC on May 10, 2012 and approved on October 3, 2011. As a result of previous soil vapor investigation results vapor mitigation measures, such as sub-slab depressurization systems (SSDSs), soil vapor barriers, SVE wells, and vacuum enhance recovery (VER) wells have been implemented in OU-4 and OU-5, as detailed in Section 3.2 below.

3.1 Previous EMGPRP Investigation Results

Historic data from prior soil vapor investigations indicate that soil vapor beneath various portions of the Site is impacted with petroleum hydrocarbons, methane, and/or chlorinated hydrocarbons. Based on the results of previous investigations, petroleum hydrocarbons and methane soil vapor impacts in some areas of the Site are potentially attributable to the free-product accumulations undergoing remediation by ExxonMobil; however, some petroleum hydrocarbon, methane and chlorinated volatile organic compound (CVOC) impacts are potentially related to past or current commercial/industrial activities within or adjacent to the Site by third parties unrelated to ExxonMobil's historical operations. The impacts attributed to other sources unrelated to ExxonMobil's historical operations include, but are not limited to, the dissolved CVOC plume(s) investigated by the United States Environmental Protection Agency (USEPA) as part of the Meeker Avenue Plume Superfund site, natural gas line leaks, and impacts beneath and surrounding the Kinder Morgan Terminal in the vicinity of Apollo Street, Bridgewater Street and Norman Avenue.

Prior investigations indicate that elevated petroleum-related volatile organic compound (VOC) concentrations in soil vapor may exist immediately above the free product accumulations beneath the Site. In addition, methane is potentially present due to the ongoing biodegradation processes in the subsurface. The results also indicate limited horizontal migration, potentially restricting the soil vapor impacts to the spatial area of the free-product accumulations. Elevated VOC concentrations in soil vapor above the free-product accumulations appear to undergo natural attenuation while migrating upwards through the vadose zone.

The combined effects of natural attenuation and the presence of a silt/clay (low permeability) layer appear to limit the potential migration of soil vapor to the shallow subsurface throughout the majority of the Site. These findings are further supported by a vapor intrusion sampling investigation that was conducted by the NYSDEC between 2006 and 2008. The investigation focused on sub-slab soil vapor and indoor air quality of properties (mostly residential, some commercial) located above the free-product accumulation within a portion of OU-7. According to notification letters sent by the NYSDEC to residents/operators within the sampling area, concentrations of VOCs in the indoor air and sub-slab samples, if detected, were not associated with the petroleum accumulations, if any, that potentially exist beneath these areas.

3.2 Existing Soil Vapor Mitigation Measures

A variety of soil vapor mitigation measures are currently in place throughout the EMGPRP including passive SSDSs, soil vapor barriers, SVE wells, and VER wells. Details regarding the various mitigation measures and their applicability to the OU-4 and OU-5 soil vapor intrusion investigation areas are described below.

3.2.1 Sub-Slab Depressurization Systems and Soil Vapor Barriers

As a protective measure, newly constructed buildings and portions of newly renovated buildings within OU-4 and OU-5 have been built with a SSDS and/or soil vapor barrier. For the purpose of this report, "newly constructed buildings" are defined as buildings constructed and or renovated after the commencement of remediation activities associated with the EMGPRP which required the installation or substantial modification of a concrete slab. Buildings located within OU-4 and OU-5 with a passive SSDS and/or vapor barrier are listed in the table below and locations are shown on Figure 3. Details regarding the location of SSDS piping are provided on Plates 3, 4, 5, and 8, as indicated in the table below.

Building Address	Block	Lot	Relevant Plate Number	Operable Unit	Passive SSDS	Vapor Barrier
306 North Henry Street	2607	6	Plate 3	OU-4	Yes	Yes
359 Kingsland Avenue	2608	25	Plate 4	OU-5	Yes	Yes
301 Norman Avenue	2612	125	Plate 5	OU-5	Yes	No
360 Kingsland Avenue	2612	140	Plate 8	OU-5	Yes	Yes

Activities related to the implementation of Interim Remedial Measures (IRMs) for select third party properties have been documented and submitted to the NYSDEC in multiple IRM Construction Completion Reports.

Additionally, the proposed remedies documented and submitted to the NYSDEC (by ExxonMobil) in the OU-4 Alternative Analysis Report (AAR) dated July 21, 2025, the 410 Kingsland Avenue Interim Site Management Plan dated December 2, 2025, and OU-5 AAR dated October 23, 2025 currently require the installation of a SSDS beneath all future buildings constructed in OU-4 and OU-5. As detailed in the 410 Kingsland Avenue Interim Site Management Plan which was approved by the NYSDEC on January 13, 2026, SSDSs beneath new buildings will be installed as active systems.

3.2.2 Soil Vapor Extraction System and Vacuum Enhanced Recovery

The existing SVE system consists of 21 SVE wells, including eight located on third-party properties in OU-5 (SVE-501 through SVE-508), eight located within the commercial / industrial area of OU-7 (SVE-703,SVE-704, SVE-706 through SVE-710, and SVE-714), and five located within the commercial / industrial area of OU-8 (SVE-814 through SVE-818). Vapor is also extracted from nine recovery wells (RW-17, RW-18, RW-21, RW-24, RW-25, RW-28, RW-C, RW-F, and RW-M) during normal recovery well operations, as part of the Vacuum-Enhanced Recovery (VER) IRM being performed in accordance with the VER IRM Work Plan submitted to the NYSDEC on November 22, 2019, and approved on December 30, 2019. Three of the 21 VER recovery wells (RW-17, RW-18, and RW-28) are located in OU-5. These SVE wells and recovery wells are connected to a common header of 12-inch diameter high-density, polyethylene (HDPE) piping installed beneath the New York City streets, which conveys extracted soil vapor to the SVE flame oxidation

unit (Flame-Ox; currently operating in catalytic oxidation mode) located at 38 Varick Street in Greenpoint, Brooklyn, New York. The location of the existing SVE system infrastructure is shown on Figure 5.

As documented in quarterly and annual progress reports, since the start-up of SVE operations in 2009, the SVE system appears to achieve soil vapor reduction at most locations targeted for mitigation efforts. The OU-5 Phase II SVE wells were installed as a proactive measure in an effort to mitigate potential shallow soil vapor concentrations beneath certain buildings within OU-5. Four (4) of the eight (8) OU-5 SVE wells (SVE-501, SVE-502, SVE-503, and SVE-508) are currently in full operation. The remaining four (4) OU-5 SVE wells (SVE-504, SVE-505, SVE-506, and SVE-507) are offline due to the high water table located in this area of the Site. As discussed in previous soil vapor sampling reports, as well as Quarterly and Annual Progress Reports, Roux has made several attempts to increase flow at the low flow rate and offline OU-5 SVE wells. Examples include re-installation of SVE wells at shallower depths, cleaning of SVE well screens, and investigation of the potential source of shallow subsurface flooding within the relevant properties. However, these SVE wells have continued to exhibit high vacuums and low flow rates, and recent observations by system O&M personnel indicate that the well screens for these wells are still being flooded by shallow groundwater. Details on SVE operations will continue to be provided within Quarterly and Annual Progress Reports.

The SVE system will continue to operate and will not be turned off prior to NYSDEC and NYSDOH approval during implementation of the SVI investigation proposed in this Work Plan.

3.3 Ongoing Soil Vapor Monitoring and Indoor Air/Sewer Screening

In accordance with the FR-VIWP, monitoring of soil vapor conditions within the EMGPRP is performed annually at the Site. Monitoring of soil vapor conditions includes sampling and screening of soil vapor monitoring points, collection of ambient air samples and screening of indoor air consisting of a building walk-though while using handheld multi-gas meters. These monitoring events are summarized in annual reports submitted to the NYSDEC. The most recent submittals that summarize soil vapor conditions at the Site are the OU-4 and OU-5 Fourth Quarter 2025 Soil Vapor Monitoring Report dated February 17, 2025 and the OU-7 and OU-8 Fourth Quarter 2025 Soil Vapor Monitoring Report dated February 17, 2025. It should be noted that the routine indoor air screening results from the most recent annual monitoring event indicate that potential soil vapor within the shallow subsurface does not appear to be impacting indoor air quality in buildings within OU-4 or OU-5. The SVI investigation proposed in this Work Plan will be completed in accordance with the SVI Guidance to further assess whether indoor air is being impacted by soil vapor intrusion within the relevant buildings.

In addition to annual soil vapor sampling events, ExxonMobil conducts ongoing monitoring activities in an effort to identify potential soil vapor intrusion pathways and/or to prevent third party activities from potential exposure, including, but not limited to:

- Monthly sewer manhole and catch basin screening throughout the Site;
- Periodic review of the New York City Department of Buildings permit records to identify potential construction activities by third parties in the Greenpoint Area that may encounter elevated soil vapor concentrations during their activities; and
- Registration with the New York City One-Call System for notification to Roux of any contractors requesting utility mark-outs in the area of the free-product accumulations.

Results of soil vapor monitoring are summarized in quarterly and annual reports submitted to the NYSDEC.

ExxonMobil's ongoing annual soil vapor monitoring program is performed using soil vapor sample points installed to depths between 2 and 10 feet below land surface, at locations that are typically adjacent to, but outside of, buildings or other structures. As described in Section 1, on June 5, 2025, NYSDEC provided ExxonMobil with comments regarding the Fourth Quarter 2024 Annual Soil Vapor Report, submitted to the NYSDEC on April 8, 2025. These comments requested that ExxonMobil perform additional investigations to evaluate soil vapor sampling results using the SVI Guidance matrices. Specifically, the NYSDEC comments requested the installation of sub-slab soil vapor points in all buildings in OU-4 and OU-5, and collection of sub-slab vapor samples and co-located indoor air samples at each building within OU-4 and OU-5. This Work Plan was prepared to address this request by the NYSDEC.

4. Scope of Work

The objectives of this scope of work are to provide an evaluation of the potential for soil vapor intrusion at buildings located within OU-4 and OU-5 (with the exception of the existing ExxonMobil Groundwater Treatment System building which is scheduled for demolition and relocation later this year). The results of the evaluation will be utilized in an effort to characterize current conditions and determine next steps, if needed, for additional monitoring and/or mitigation measures. Vapor intrusion evaluation activities, including sub-slab soil vapor sampling and indoor/ambient air sampling, will be conducted in accordance with the SVI Guidance. The following sections provide a detailed summary of the proposed scope of work.

4.1 Health and Safety

All activities performed on behalf of ExxonMobil will be performed in compliance with applicable sections of 29 Code of Federal Regulations (CFR) 1910 and 1926. All phases of activities conducted on behalf of ExxonMobil will be monitored by Roux for safety, health conditions, and enforcement of the Health and Safety Plan (HASP) developed for the EMGPRP Site.

4.2 Property Access

Prior to mobilization, ExxonMobil will coordinate access to each third-party owned property located in OU-4 and OU-5. Implementation of the scope of work is contingent upon coordination with third-party property owners and/or property managers facilitating access to ExxonMobil. ExxonMobil will keep NYSDSEC apprised of its efforts to coordinate access, as warranted.

4.3 Building Inspection and Sample Locations

Roux will conduct a pre-sampling building inspection to document conditions that might interfere with the indoor air and sub-slab soil vapor sampling. The abbreviated Indoor Air Quality Questionnaire and Building Inventory form (Appendix B of the SVI Guidance) will be completed for each building. A copy of the form to be utilized for field activities is attached as Appendix B. As part of the inspection, building characteristics (e.g., heating and ventilation system details, floor layout, floor drains, sumps and conditions of the building including any existing cracks in the floor, etc.), recent renovations (e.g., fresh paint or carpet) and presence of odors will be noted. As previously mentioned, all buildings being investigated within OU-4 and OU-5 are constructed as slab on grade foundation.

Additionally, a product inventory will be conducted to identify potential sources of indoor air contamination. Portable monitoring devices including a MultiRAE (or other comparable device) capable of detecting lower explosive level (LEL), oxygen, methane, volatile organic compounds, and carbon dioxide will be used to screen potential sources and to document background conditions in each building.

Sample locations will be spaced in an effort to obtain representative coverage across each building. The proposed number and locations of samples are based on both the size of the building as well as the field observations. Larger buildings are proposed to have more samples than smaller buildings. When feasible, the proposed sample locations are generally biased away from observed slab penetrations and/or cracks, if present. To prevent disruption of routine business operations of select third party properties, the proposed sampling locations selected are typically located away from central areas of each building, however, all samples will be located a minimum of five feet from exterior walls. Indoor air and sub-slab soil

vapor samples will be co-located in all buildings to evaluate if compounds detected in indoor air concentrations (if present) are potentially attributable to vapor intrusion. Additionally, one ambient air sample will be collected upwind of each relevant building at the time of sampling. For buildings constructed with a passive SSDS, Roux will review as built diagrams, to the extent available, in an effort to prevent drilling into existing SSDS piping.

The only structure with a concrete slab in the 410 Kingsland Avenue property is the RCS building, an industrial building which houses the remediation system; it is not an occupied structure and is planned for demolition by the end of 2026. One sub-slab soil vapor sample will be collected from the RCS building prior to demolition to assess potential VOC concentrations that could be found beneath a future building in the 410 Kingsland Avenue property. The sub-slab sample is proposed to be collected prior to the commencement of demolition activities in October 2026 (i.e., prior to the 2026-2027 heating season) due to the anticipated demolition of the RCS building. If demolition of the RCS building is delayed, and the building is still standing during the 2026-2027 heating season, a sub-slab sample will be collected at that time.

A list of the anticipated buildings to be included in the investigation and the related number of samples per building is provided below and approximate proposed sample locations for each building are shown on Plates 1 through 10:

Address	Block	Lot	Approximate Building Footprint (square feet)	Operable Unit	Number of Soil Vapor Monitoring Points	Number of Indoor Air Samples Locations	Number of Ambient Air Sample Locations
372 Greenpoint Avenue	2584	15	6,300	OU-4	3	3	1
332 Monitor Street	2585	1	660	OU-4	1	1	1
306 North Henry Street	2607	6	94,000	OU-4	7	7	1
359 Kingsland Avenue	2608	25	108,000	OU-5	7	7	1
301 Norman Avenue	2612	125	51,000	OU-5	5	5	1
297 Norman Avenue	2612	133	11,000	OU-5	4	4	1
271 Norman Avenue[1]	2612	136	25,000	OU-5	2	2	1
360 Kingsland Avenue	2612	140	16,200	OU-5	4	4	1
362 Kingsland Avenue	2612	145	14,000	OU-5	3	3	1
410 Kingsland Avenue	2616	1	2,800	OU-4	1	0	0

1. Based on a field inspection and discussions with personnel at 271 Norman Avenue property , the raised loading dock portion of the building sits on a solid concrete slab which is approximately four feet thick. Therefore, no sampling is proposed within this portion of the building.

4.4 Soil Vapor Sampling Point Installation

Third-party property owners will be consulted prior to conducting intrusive work within their properties regarding proposed sample locations . Roux will notify the New York City One-Call Center prior to any intrusive drilling activities and request utility mark outs at each property. Building plans will be requested from the third-party property owners to review for the presence of subgrade utilities. Additionally, a geophysical survey will be conducted to locate potential subsurface utilities near proposed drilling locations.

Results of the 811 utility mark out and geophysical survey will be reviewed, and if needed the proposed sub-slab soil vapor sample locations will be adjusted.

Permanent Vapor Pin® sampling devices will be installed to facilitate the collection of sub-slab soil vapor samples. The installation process is as follows:

1. A 1 ½-inch diameter hole will be drilled to approximately 1 ¾ inches deep in the slab using a hammer drill.
2. Concrete cuttings will be removed with a dry/wet vacuum equipped with a HEPA filter. A drilling guide will be placed into the drilled hole to ensure that the hole is at the proper depth.
3. A 5/8-inch drill bit will be placed in the drilling guide and drilled through the slab.
4. The drill bit and drill guide will be removed, and proper placement will be confirmed.
5. A silicone Vapor Pin® sleeve on the Vapor Pin® sampling device will be placed in the drilled hole and hammered in place.
6. A Vapor Pin® cap will be placed on the point to prevent vapor loss prior to sampling and protect potential indoor air exposure when sampling is not occurring.

It should be noted that sub-slab soil vapor sampling points will be installed in three buildings with an existing vapor barrier (306 North Henry Street, 359 Kingsland Avenue and 360 Kingsland Avenue). To ensure collection of a representative sample of soil vapor conditions, the existing vapor barrier will be penetrated, and Vapor Pins® will be installed beneath the existing vapor barrier; however, Roux will carefully install these points to ensure minimal disruption to the vapor barrier's integrity.

4.5 Sampling Procedures

Soil vapor and indoor/ambient air sampling activities will be conducted in accordance with the SVI Guidance. Following inspections and installation of sample locations, vapor sampling will be conducted using a time-integrated sampling procedure. Samples will be collected using certified clean and leak-free stainless-steel Summa® polished or silica lined air sampling canisters provided by an Environmental Laboratory Approved Program (ELAP) certified by the NYSDOH. Each canister will be fitted with a calibrated and certified flow controller to regulate air flow over an 8-hour period for sub-slab soil vapor, indoor air, and ambient air samples. Samples will be collected over an 8-hour time period to reflect the typical workday duration for the relevant industrial and commercial building uses.

As part of the sampling procedure, the following information will be recorded at each sampling location:

- Start time;
- Initial vacuum reading;
- End time; and
- Final vacuum reading.

In addition, the following climate data will be obtained from the nearest weather station and recorded for each sampling event.

- Temperature; and
- Barometric pressure.

4.5.1 Soil Vapor Sampling

Following installation, samples will be collected during heating season, as requested by the NYSDEC, at sub-slab soil vapor sampling points in accordance with EMGPRP's Quality Assurance Project Plan (QAPP), dated March 9, 2021, and in a manner consistent with prior investigations utilizing the following procedural step:

1. The sampling tubing will be attached to the Vapor Pin® sampling point.
2. The sampling tubing will be connected to a "T" connector three-way valve assembly, with one end of the "T" connector leading to a vacuum pump and the other end leading to a pre evacuated summa canister with a calibrated flow controller.
3. The soil vapor sample tubing and entire sampling train will be purged of approximately three volumes of air using a vacuum pump set at a rate of approximately 0.2 liters per minute.
4. A tracer gas (i.e., helium) will be used in an effort to enrich the atmosphere in the immediate vicinity of the sampling location where the sampling tubing intersected the ground surface in order to test the Vapor Pin® seal and verify that ambient air was not inadvertently drawn into the sample. A plastic container (i.e., bucket), with a soft seal, will be placed over the monitoring point and helium will be injected into the bucket during purging of the monitoring point in an effort to enrich the interior of the bucket with the tracer gas. Note that the 3-way valves used to connect the sample tubing to the equipment will also be placed under the shroud (i.e., the bucket enclosure) and included in the tracer gas verification. This will be done in an effort to verify that the valves do not provide a means by which ambient air would enter the canister and possibly dilute the sample. Both the purge volume from the sample tubing (i.e., also the air that passed through the 3-way valve), and the helium enriched area within the bucket will be screened for the tracer gas. The gas will be measured with a MGD-2002 helium detector (by Dielectric) or other suitable helium detectors, which measures the rate of helium leakage at the surface. If the screening results showed that the rate of helium detected from the sampling tubing is greater than 10% of the helium detected in the enriched area (i.e., within the bucket), the seals around the sampling equipment will be reset and the sampling tubing will be purged again until the tracer gas is no longer detected at levels greater than 10% of the enriched area.
5. Following the purging and tracer gas verification steps, the valve leading to the pump will be closed, the pump turned off, and the soil vapor directed to a 6-liter summa canister for sample collection. A laboratory-supplied, calibrated flow controller will be used in an effort to restrict the sample collection rate to 0.2 liters per minute or less.
6. Once the sample is collected, the soil vapor monitoring point will be screened with several gas meters (e.g., MultiRAE+ and GEM2000/GEM5000) for lower explosive level (LEL), oxygen, methane, and carbon dioxide. LEL will be measured as a percentage of the LEL for methane (where 100% LEL equals 50,000 parts per million of methane), while oxygen, methane, and carbon dioxide will be measured as percent volume, using multi-gas meters calibrated daily with appropriate multi gas standards. The screening process will include double-checking the screening data through the utilization of separate, multiple gas meters.
7. Upon completion of the sample collection and screening steps, the sample tubing will be removed from the Vapor Pin® sampling point, and the sampling point will be capped. A flush mount cap will be secured to the Vapor Pin sampling point in an effort to allow for subsequent monitoring events.

All activities conducted will be documented by Roux in the applicable project specific field book. Soil vapor sampling forms will be completed for each sampling point to document sampling, leak test results, and gas meter results.

4.5.2 Indoor Air/Ambient Air Sampling

As discussed above, indoor air samples will be temporally and spatially collocated with sub-slab soil vapor samples in each building. Indoor air sampling canisters will be set at a height of approximately five feet above ground surface to represent the height at which occupants are normally seated. Ambient air samples will be collected from representative locations at the exterior of sampled buildings to document background conditions during the same sampling interval as indoor air samples.

4.5.3 Quality Control Samples

Blind duplicate samples will be collected at a minimum frequency of one per twenty samples. Each duplicate sample will be collected immediately following collection of the parent sample, utilizing the same sample collection method as described in Section 4.5.1 above. Analytical results for the blind duplicate samples will be evaluated to see if results are generally consistent with the parent samples. All blind duplicate samples will be collected in accordance with the Site's QAPP.

4.5.4 Confirmatory Sampling

Prior to the recommendation of next steps, a confirmatory round of sub-slab soil vapor, indoor air, and ambient air sampling will be performed during heating season at the same building and sample locations included in the initial sampling round. The confirmatory sampling results, along with the initial sampling results, will be evaluated against the SVI Guidance, as described below in Section 4.6 to recommend the appropriate next steps (i.e., No Further Action, Monitoring, or Mitigation).

4.5.5 Sample Analysis and Data Validation

All samples will be submitted to an ELAP certified laboratory under chain of custody protocols outlined in the QAPP. Vapor samples will be analyzed for VOCs using USEPA Method TO-15 and methane via USEPA Method 18.

Laboratory analytical data packages for all data collected during this investigation will be provided to the NYSDEC in the electronic data deliverable format (EDD). As per the QAPP, data validation will be performed by a third-party data validator, Data Validation Services, to conduct a data usability evaluation and verify that proper, method-specific quality control was performed.

4.6 Data Evaluation and Next Steps

Following data validation, soil vapor and indoor air sample results will be compared to the applicable SVI Guidance matrices. Although there are no applicable matrices specific to methane, methane will continue to be monitored as part of this scope of work, with results compared to the site-specific screening criteria presented in the FR-VIWP and HNP.

Based on the results of soil vapor and indoor air sampling compared to applicable SVI Guidance matrices and a review of building use, the following next steps will apply:

- If comparison of the sub-slab soil vapor and indoor air results to the SVI Guidance matrices indicates that no further action is required, the Vapor Pin® sampling points will be appropriately abandoned, and no further action will be required.
- If comparison of the sub-slab soil vapor and indoor air results to the SVI Guidance matrices indicates that further action is potentially required, next steps will be determined based on existing mitigation measures (SSDS and/or vapor barrier) in the building. For buildings with an existing

SSDS, the passive system will be converted to an active SSDS system and operation, monitoring and maintenance (OMM) activities will be conducted.

- If comparison of the sub-slab soil vapor and indoor air results to the SVI Guidance matrices indicates that additional action is potentially required for buildings without an SSDS or vapor barrier, follow-up actions will include an evaluation of mitigative measures.

4.6.1 Sample Point Abandonment and Vapor Barrier Repair

As discussed above, if sampling results indicate that no further action is required, the Vapor Pin® sampling points will be removed and appropriately abandoned. Abandonment will include removal of the Vapor Pin®, clearing the hole of any debris (if present) and filling the hole to grade with hydraulic cement.

4.6.2 Operation, Monitoring and Maintenance (if needed)

For buildings where a SSDS will operate, a system evaluation utilizing existing soil vapor sampling points will be conducted after installation or enhancement to confirm vacuum pressure beneath the slab is at least 0.004-Inches of Water Column (WC). Confirmation indoor air sampling will then be conducted to confirm mitigation measures successfully mitigated the vapor concern requiring no further action. If these conditions are not met, the system will be modified (i.e., increase vacuum) and/or identify potential sources of indoor air contaminants within the building.

The active SSDS will remain operational and OMM activities will be conducted until data indicates that the vapor concern has been eliminated, and no further action is required. The need for an OMM plan will be discussed with the NYSDEC following submittal of the results of initial sub-slab soil vapor and indoor air results.

4.7 Property Owner Notification

Property owners and/or tenants will be notified of sub-slab soil vapor and indoor/ambient air sampling results and proposed next steps, if needed. Notifications will consist of a summary of sub-slab soil vapor and indoor/ambient air results in tabular format, which will be sent via certified mail. The NYSDEC and NYSDOH will be provided with preliminary sampling result letters for agency review prior to property owner and/or tenant notifications.

5. Schedule and Reporting

An anticipated schedule regarding implementation and reporting related to the proposed Work Plan is detailed in the table below.

Anticipated Completion	Task Description
2026 - 2027 Heating Season	Initial and Confirmatory OU-4 and OU-5 SVI Investigation Field Work
90 days after receiving last Category B Laboratory Report	Submit OU-4/OU-5 SVI Investigation Results Summary Report

The schedule proposed above is subject to NYSDEC approval. As described in Section 4.2, implementation of the scope of work and the above schedule is also contingent upon third-party property owners, and/or property managers granting access to ExxonMobil. ExxonMobil will keep NYSDEC apprised of its efforts to obtain access and any need for modification of the schedule.

Respectfully submitted,

ROUX ENVIRONMENTAL ENGINEERING AND GEOLOGY, D.P.C.



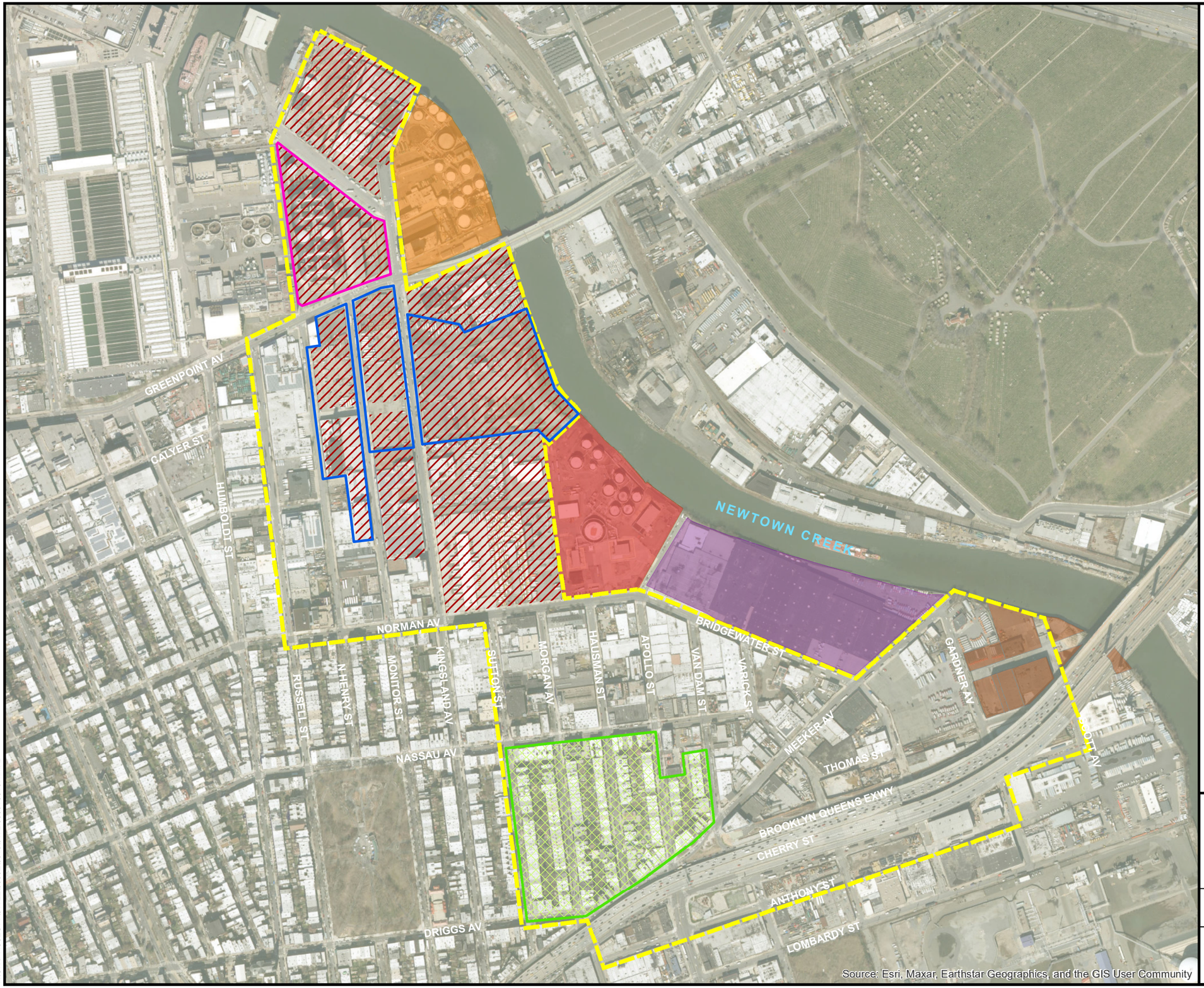
Jacqueline Carames
Project Geologist



Andrew Baris
Principal Hydrogeologist / Executive Vice President

FIGURES

1. Site Map
2. Operable Units
3. Building Operational Status and Existing Mitigation Measures
4. SVE System Layout



N

LEGEND

- FORMER BROOKLYN TERMINAL
- EMPIRE MERCHANTS (REMEDIATION UNDER CHEVRON MANAGEMENT)
- METRO TERMINAL (UNDER METRO MANAGEMENT)
- FORMER BP TERMINAL (UNDER KINDER MORGAN MANAGEMENT)
- HISTORICAL FOOTPRINT
- NEWTOWN CREEK WPCP (UNDER NYCDEP MANAGEMENT)
- RESIDENTIAL AREA
- WASTE MANAGEMENT
- EMGPRP SITE BOUNDARY

NOTES

NYCDEP - NEW YORK CITY DEPARTMENT OF ENVIRONMENTAL PROTECTION
EMGPRP - EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECT
WPCP - WATER POLLUTION CONTROL PLANT

500 0 500'

Title:

SITE MAP

EXXONMOBIL
GREENPOINT PETROLEUM REMEDIATION PROJECT
GREENPOINT, BROOKLYN, NEW YORK

Prepared for:
EXXONMOBIL OIL CORPORATION
BROOKLYN, NEW YORK

ROUX

Compiled by: N.B.	Date: 10/09/25	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	1
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File: 0172.0030Y5310.1.mxd		

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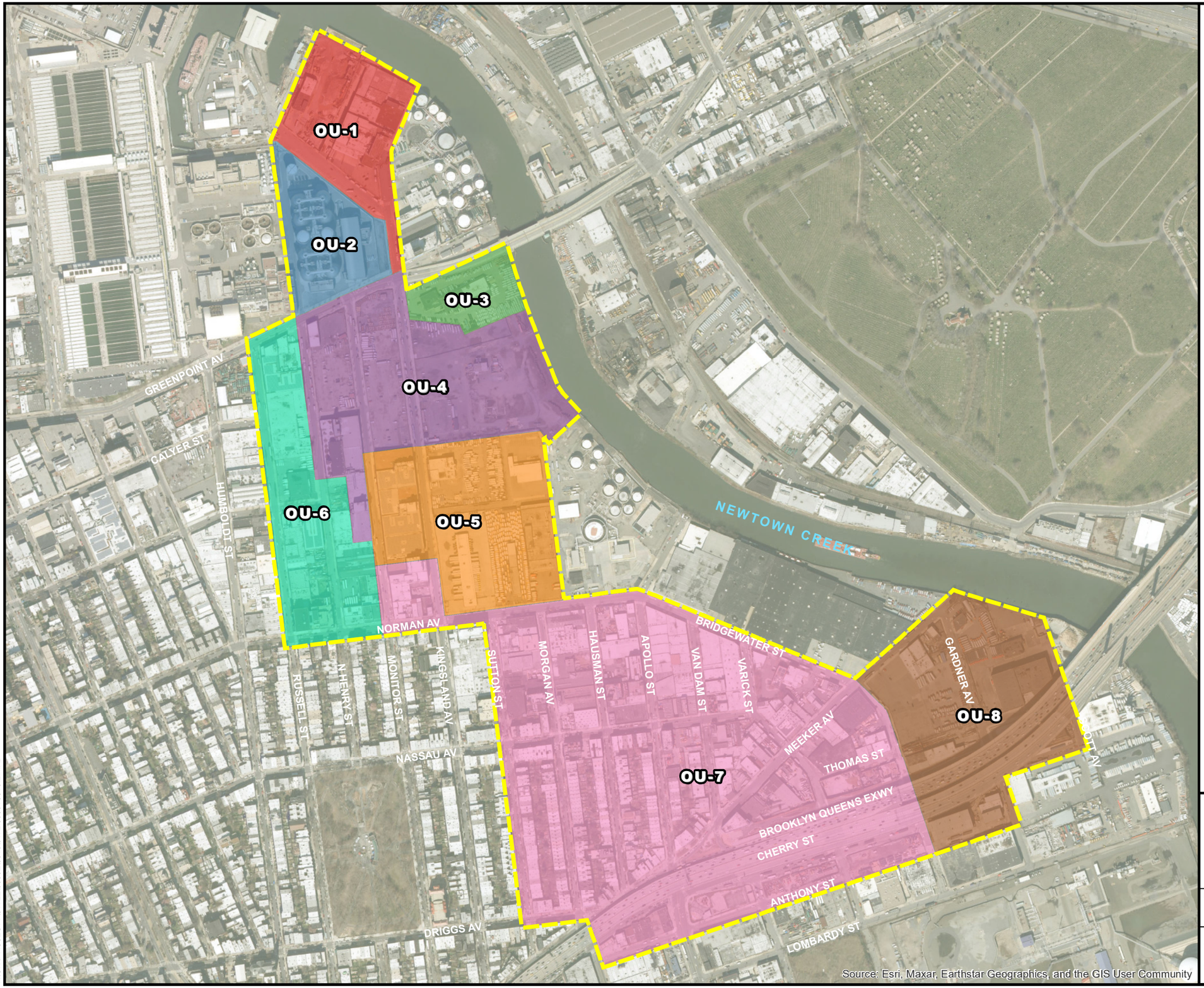

N

LEGEND

- OU-1 FORMER LUBE PLANT
- OU-2 FORMER NORTHERN CRUDE YARD
- OU-3 460 KINGSLAND AVENUE
- OU-4 FORMER BROOKLYN TERMINAL
- OU-5 FORMER REFINERY PROPERTIES
- OU-6 WESTERN OFF-SITE AREA
- OU-7 SOUTHERN OFF-SITE AREA
- OU-8 EASTERN OFF-SITE AREA
- EMGPRP SITE BOUNDARY

NOTE

THE OU DESCRIPTIONS CONTAINED IN THE ABOVE LEGEND ARE GENERAL AND ARE NOT MEANT TO BE COMPLETE OR DETAILED. FOR ADDITIONAL INFORMATION REGARDING EACH OU, PLEASE REFER TO PRIOR EMGPRP REPORTS SUBMITTED TO THE NYSDEC

500 0 500'

Title:

OPERABLE UNITS

EXXONMOBIL
GREENPOINT PETROLEUM REMEDIATION PROJECT
GREENPOINT, BROOKLYN, NEW YORK

Prepared for:
EXXONMOBIL OIL CORPORATION
BROOKLYN, NEW YORK

ROUX

Compiled by: N.B.	Date: 10/09/25	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	2
Project Mgr: C.L.	Project: 0172.0030Y110	
File: 0172.0030Y5310.2.mxd		

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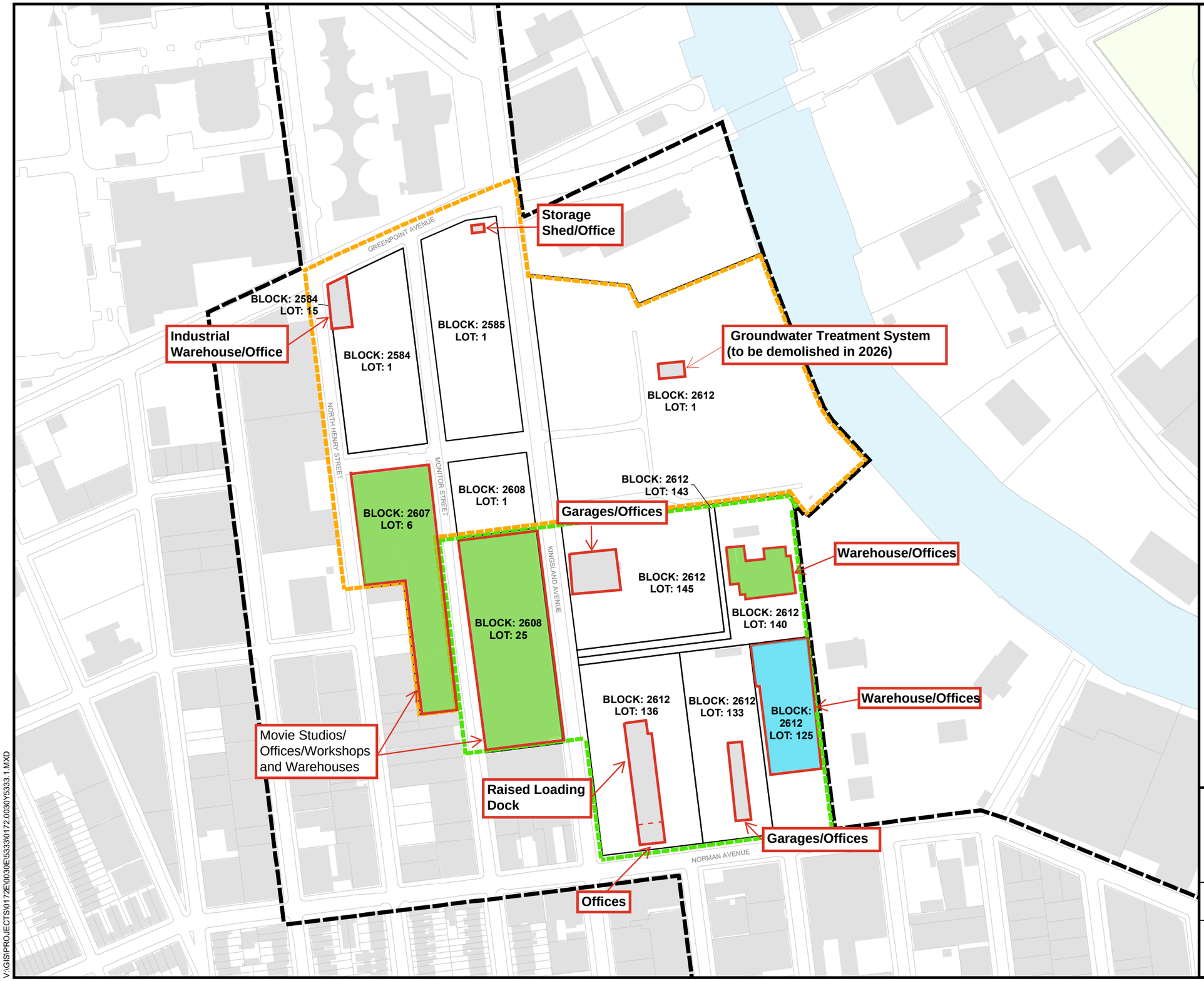

N

LEGEND

- OU-4
- OU-5
- EMGPRP BOUNDARY
- BUILDING OUTLINE
- BUILDING WITH EXISTING PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM AND SOIL VAPOR BARRIER
- BUILDING WITH EXISTING PASSIVE SUB-SLAB DEPRESSURIZATION SYSTEM

Block	Lot	Building Address
2584	15	372 Greenpoint Avenue
2585	1	332 Monitor Street
2607	6	306 North Henry Street
2608	25	359 Kingsland Avenue
2612	125	301 Norman Avenue
2612	133	297 Norman Avenue
2612	136	271 Norman Avenue
2612	140	360 Kingsland Avenue
2612	145	362 Kingsland Avenue
2616	1	410 Kingsland Avenue

250 0 250'

Title:

BUILDING OPERATIONAL STATUS AND EXISTING MITIGATION MEASURES

EXXONMOBIL
GREENPOINT PETROLEUM REMEDIATION PROJECT
GREENPOINT, BROOKLYN, NEW YORK

Prepared for:
EXXONMOBIL OIL CORPORATION
BROOKLYN, NEW YORK

ROUX

Compiled by: M.E.M.	Date: 01/13/26	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	3
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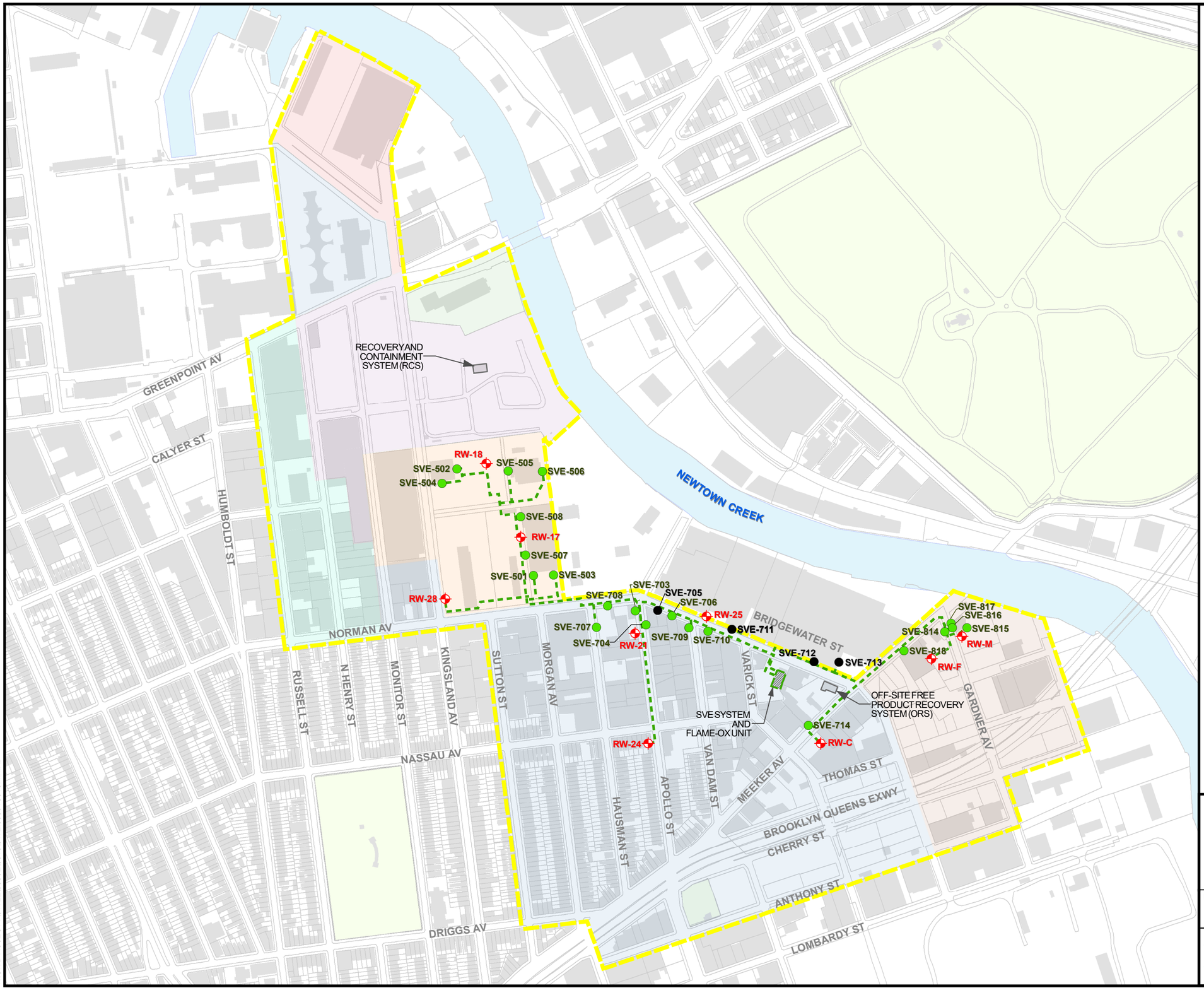

N

LEGEND

- SVE-704 — ACTIVE SOIL VAPOR EXTRACTION WELL USED FOR THE FULL SCALE SYSTEM
- SVE-705 — EXISTING SOIL VAPOR EXTRACTION WELL NOT USED FOR THE FULL SCALE SYSTEM
- RW-24 — ACTIVE VACUUM-ENHANCED RECOVERY (VER) WELL
- SVE PIPING
- SVE SYSTEM AND FLAME-OX UNIT
- EMGPRP SITE BOUNDARY

500 0 500'

Title:

SVE SYSTEM LAYOUT

EXXONMOBIL
GREENPOINT PETROLEUM REMEDIATION PROJECT
GREENPOINT, BROOKLYN, NEW YORK

Prepared for:
EXXONMOBIL OIL CORPORATION
BROOKLYN, NEW YORK

ROUX

Compiled by: N.B.	Date: 10/09/25	FIGURE
Prepared by: M.S.R.	Scale: AS SHOWN	4
Project Mgr: C.L.	Project: 0172.0030Y110	
File: 0172.0030Y5310.4.mxd		

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APPENDICES

A. NYSDEC Communications

B. Abbreviated Indoor Air Quality Questionnaire and Building Inventory Form – May 2010

APPENDIX A

NYSDEC Communications

Jacqueline Carames

From: Burghardt, Michael J <michael.j.burghardt@exxonmobil.com>
Sent: Wednesday, July 9, 2025 6:50 AM
To: Alam, Rafi S (DEC)
Cc: Dudek, Heidi M (DEC); Gorton, Lisa A (DEC); Deyette, Scott (DEC); Keegan, Aaron (HEALTH); Surani, Shaun J (HEALTH); Lee, John J; Dennis Shin; Christopher Proce; Jacqueline Carames; Andrew Baris; Justin Kennedy; Cervi, Brian
Subject: RE: Greenpoint - ExxonMobil | S224150 | Follow up on SVI Matrices and Requested Information

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Good morning Rafi,

I've provided responses to your four comments in the original email below. Please follow the link to access three reports associated with Comment #3. We plan to dedicate time during our site visit next Tuesday to discuss further. In the meantime, please let me know if you have any questions or require additional information.

EMGPRP OU-4 and OU-5 SVE Reports

Thank you,
Mike

Michael J. Burghardt
U.S. East Supervisor
Environmental & Property Solutions (E&PS) – Environmental Solutions

ExxonMobil Environmental and Property Solutions Company
100 Walnut Avenue, Suite 210
Clark, NJ 07066
201 232 4417 Mobile

From: Alam, Rafi S (DEC) <Rafi.Alam@dec.ny.gov>
Sent: Monday, July 7, 2025 12:57 PM
To: Burghardt, Michael J <michael.j.burghardt@exxonmobil.com>
Cc: Dudek, Heidi M (DEC) <heidi.dudek@dec.ny.gov>; Gorton, Lisa A (DEC) <Lisa.Gorton@dec.ny.gov>; Deyette, Scott (DEC) <scott.deyette@dec.ny.gov>; Keegan, Aaron (HEALTH) <Aaron.Keegan@health.ny.gov>; Surani, Shaun J (HEALTH) <Shaun.Surani@health.ny.gov>; Lee, John J <john.j.lee@exxonmobil.com>; Dennis Shin <dshin@rouxinc.com>; CPROCE_ROUXINC.COM /EXT <CPROCE@ROUXINC.COM>; Courtney Lind <clind@rouxinc.com>; abaris /EXT <ABARIS@ROUXINC.COM>; Justin Kennedy <jkennedy@rouxinc.com>; Cervi, Brian <brian.cervi@wsp.com>
Subject: RE: Greenpoint - ExxonMobil | S224150 | Follow up on SVI Matrices and Requested Information

Good afternoon,

Just reaching out with a friendly follow-up regarding the email below and the requested information. I wanted to check if the requested items will be submitted to the Department prior to our site visit on July 15th. Any updates would be greatly appreciated. Thank you!

RAFI ALAM *(he/him/his)*

Project Manager, Division of Environmental Remediation

New York State Department of Environmental Conservation
Division of Environmental Remediation | Bureau B, Section D
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dec.ny.gov | @NYSDEC on Social Media | Podcast

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https://mysend.ny.gov:443/nys/send/to/user/rafialamdecnygov

From: Alam, Rafi S (DEC)
Sent: Thursday, June 5, 2025 11:27 AM
To: Burghardt, Michael J <michael.j.burghardt@exxonmobil.com>
Cc: Dudek, Heidi M (DEC) <heidi.dudek@dec.ny.gov>; Gorton, Lisa A (DEC) <Lisa.Gorton@dec.ny.gov>; Deyette, Scott (DEC) <scott.deyette@dec.ny.gov>; Keegan, Aaron (HEALTH) <Aaron.Keegan@health.ny.gov>; Surani, Shaun J (HEALTH) <Shaun.Surani@health.ny.gov>; Lee, John J <john.j.lee@exxonmobil.com>; Dennis Shin <dshin@rouxinc.com>; cproce@rouxinc.com; Courtney Lind <clind@rouxinc.com>; abaris /EXT <ABARIS@ROUXINC.COM>; Justin Kennedy <jkennedy@rouxinc.com>; Cervi, Brian <brian.cervi@wsp.com>
Subject: Greenpoint - ExxonMobil | S224150 | Follow up on SVI Matrices and Requested Information

Good morning,

As discussed during our recent bi-monthly call, and in light of the updated and the applicability of the new guidance of New York State Department of Health (NYSDOH) Soil Vapor Intrusion (SVI) Matrices (see attached), please find below our comments:

1. **SVI Assessment Using Updated Matrices**
   Please ensure that the Soil Vapor Report for Q4 2024 and all future reports use the February 2024 NYSDOH SVI Matrices to evaluate data for mitigation decision-making purposes.
   Response:
   - Soil vapor sampling is performed annually at the Site in accordance with the NYSDEC approved Former Refinery Vapor Intrusion Work Plan (FR-VIWP) dated May 27, 2011. Consistent with the requirements of the FR-VIWP, sub-slab vapor sampling and indoor air sampling activities are not included in the annual sampling event scope of work; therefore, they were not included in the scope covered by the 2024 Soil Vapor Report. However, due to the extensive impermeable cover of asphalt, concrete, and building foundations across OU-4 and OU-5, the shallow soil vapor monitoring points adjacent to buildings have historically been considered representative of sub-slab vapor data.
   - To utilize the February 2024 NYSDOH SVI Matrices to retroactively evaluate the 2024 Soil Vapor Report data, it is proposed that the existing shallow soil vapor monitoring points adjacent to the buildings in OU-4 and OU-5 be considered as an equivalent to sub-slab vapor points for this evaluation. It should be noted that the installation of new sub-slab vapor points would compromise existing vapor barriers beneath buildings in OU-4 and OU-5; therefore, it is also proposed that the existing shallow monitoring points adjacent to buildings in OU-4 and OU-5 continue to be utilized as equivalents to the sub-slab vapor component of 2024 NYSDOH Matrices when evaluating data in future reports.
   - Regarding the indoor air sampling component of the NYSDOH Matrices, indoor air screening is performed annually in accordance with the FR-VIWP and as further detailed in the Hazard Notification Plan dated May 10, 2012. Indoor air screening was last performed on November 1, 2024, as detailed in the 2024 Soil Vapor Report. The indoor air screening included a building walk-through while using handheld multi-gas meters in an effort to screen the indoor air of four buildings located in OU-4 and six buildings located in OU-5. The buildings do not have basements, so the screening is conducted on the first floor of each building and focuses on locations where soil vapor, if any, could potentially enter the

building and accumulate (*e.g.*, floor drains, cracks, or holes in the floor, etc.). The meters screen potential VOCs, methane (as percent LEL), percent oxygen, carbon monoxide, and hydrogen sulfide. All meter readings for VOCs, methane (as percent LEL), carbon monoxide, and hydrogen sulfide obtained during the November 2024 screening event were reported as non-detect or trace (i.e., typically less than 1 ppm) inside all buildings that were screened which indicates that no vapor intrusion is occurring. Percent oxygen was also consistently measured at approximately 20.9% throughout the buildings during indoor air screening activities.

- Based on the indoor air screening results discussed above, indoor air sampling is not proposed at this time as there is no evidence of vapor intrusion inside of the buildings in OU-4 and OU-5.

2. **Indoor Air Sampling Update**
   Kindly clarify the date of the last indoor air sampling event in OU-4 and OU-5. Based on the timeline, we anticipate the need for updated indoor air data to evaluate the effectiveness of the existing Soil Vapor Extraction (SVE) system in mitigating vapor intrusion. NYSDEC request that new indoor air samples be collected and analyzed accordingly.
   Response:
   - The buildings in OU-4 and OU-5, which are zoned for industrial and commercial use, include warehouses, garages, and office spaces. The occupied portions of these buildings are screened annually in accordance with the FR-VIWP and Hazard Notification Plan, as detailed above. The most recent indoor air screening results are summarized above and detailed in the 2024 Soil Vapor Report. Aside from the abovementioned indoor air screening, indoor air sampling has not been performed during any of the prior soil vapor sampling events since it is not included in the requirements of the FR-VIWP or Hazard Notification Plan. The next indoor air screening is currently scheduled to be performed in 4Q 2025.
   - Based on the indoor air screening results discussed above, indoor air sampling is not proposed at this time as there is no evidence of vapor intrusion inside of the buildings in OU-4 and OU-5. The results of indoor air sampling, if conducted, would likely be impacted by other indoor air sources associated with the ongoing third-party industrial and commercial activities in OU-4 and OU-5.

3. **SVE Design Parameters**
   To support a comprehensive review of the SVE system's performance, please provide the system design parameters, specifically the radius of influence for each SVE well in OU-4 and OU-5. This information is critical in assessing system coverage and overall effectiveness.
   Response:
   - Of OU-4 and OU-5, the current SVE system is only connected to SVE and vacuum-enhanced recovery (VER) wells in OU-5. Although the soil vapor extraction system does not extend into OU-4, all occupied buildings within the historical footprint of ExxonMobil's operations in OU-4 have mitigation including vapor barrier and SSDSs.
   - The following documents summarize the design and estimated radius of influence for SVE points located in OU-5:
     1. Soil Vapor Extraction Pilot Study Results (OU-5) Summary Report (Pilot Study Report) dated December 4, 2013;
     2. OU-5 Soil Vapor Extraction System Expansion Completion Report dated September 2, 2014; and
     3. The most recent OU-4 and OU-5 Annual Soil Vapor Report dated April 8, 2025. This report summarizes the data collected during the Fourth Quarter of 2024 and provides an updated OU-5 SVE system and vacuum enhanced recovery performance evaluation.

4. **Active SSD System**
   Active SSDS system will be required for any proposed future development in OU-4. Evaluation of existing structures may be requested upon review of the information requestion under Items 1 through 3 above.
   Response:

- Passive sub-slab depressurization systems (SSDSs) are currently installed beneath 5 buildings, including three in OU-4 (300 North Henry St, 206 North Henry St, and 360 Kingsland) and two in OU-5 (359 Kingsland Ave and 301 Norman Ave), all of which are inspected annually. Additionally, the proposed remedies described in the OU-4 Alternative Analysis Report (AAR), the 410 Kingsland Ave Interim Soil Management Plan, and OU-5 AAR currently require the installation of a passive SSDS beneath all future buildings constructed in OU-4 and OU-5 with potential for conversion to active systems, if needed.

Should you have any questions or require clarification regarding the comments provided, please feel free to reach out. We kindly request that the necessary information be submitted prior to our upcoming meeting scheduled for July 15 to allow sufficient time for review and to ensure a meaningful and well-informed discussion during the meeting.

RAFI ALAM *(he/him/his)*
Project Manager, Division of Environmental Remediation

New York State Department of Environmental Conservation
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From:	Burghardt, Michael J
To:	Alam, Rafi S (DEC)
Cc:	Dudek, Heidi M (DEC); Gorton, Lisa A (DEC); Deyette, Scott (DEC); Keegan, Aaron (HEALTH); Surani, Shaun J (HEALTH); Lee, John J; Dennis Shin; Christopher Proce; Jacqueline Carames; Andrew Baris; Justin Kennedy; Cervi, Brian
Subject:	RE: Greenpoint - ExxonMobil | S224150 | Follow up on SVI Matrices and Requested Information
Date:	Wednesday, July 9, 2025 6:50:23 AM
Attachments:	image001.png

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EMGPRP OU-4 and OU-5 SVE Reports

Thank you,
Mike

Michael J. Burghardt
U.S. East Supervisor
Environmental & Property Solutions (E&PS) – Environmental Solutions

ExxonMobil Environmental and Property Solutions Company
100 Walnut Avenue, Suite 210
Clark, NJ 07066
201 232 4417 Mobile

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Project Manager, Division of Environmental Remediation

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As discussed during our recent bi-monthly call, and in light of the updated and the applicability of the new guidance of New York State Department of Health (NYSDOH) Soil Vapor Intrusion (SVI) Matrices (see attached), please find below our comments:

1. **SVI Assessment Using Updated Matrices**
   Please ensure that the Soil Vapor Report for Q4 2024 and all future reports use the February 2024 NYSDOH SVI Matrices to evaluate data for mitigation decision-making purposes.
   Response:
   - Soil vapor sampling is performed annually at the Site in accordance with the NYSDEC approved Former Refinery Vapor Intrusion Work Plan (FR-VIWP) dated May 27, 2011. Consistent with the requirements of the FR-VIWP, sub-slab vapor

sampling and indoor air sampling activities are not included in the annual sampling event scope of work; therefore, they were not included in the scope covered by the 2024 Soil Vapor Report. However, due to the extensive impermeable cover of asphalt, concrete, and building foundations across OU-4 and OU-5, the shallow soil vapor monitoring points adjacent to buildings have historically been considered representative of sub-slab vapor data.

- To utilize the February 2024 NYSDOH SVI Matrices to retroactively evaluate the 2024 Soil Vapor Report data, it is proposed that the existing shallow soil vapor monitoring points adjacent to the buildings in OU-4 and OU-5 be considered as an equivalent to sub-slab vapor points for this evaluation. It should be noted that the installation of new sub-slab vapor points would compromise existing vapor barriers beneath buildings in OU-4 and OU-5; therefore, it is also proposed that the existing shallow monitoring points adjacent to buildings in OU-4 and OU-5 continue to be utilized as equivalents to the sub-slab vapor component of 2024 NYSDOH Matrices when evaluating data in future reports.
- Regarding the indoor air sampling component of the NYSDOH Matrices, indoor air screening is performed annually in accordance with the FR-VIWP and as further detailed in the Hazard Notification Plan dated May 10, 2012. Indoor air screening was last performed on November 1, 2024, as detailed in the 2024 Soil Vapor Report. The indoor air screening included a building walk-through while using handheld multi-gas meters in an effort to screen the indoor air of four buildings located in OU-4 and six buildings located in OU-5. The buildings do not have basements, so the screening is conducted on the first floor of each building and focuses on locations where soil vapor, if any, could potentially enter the building and accumulate (*e.g.*, floor drains, cracks, or holes in the floor, etc.). The meters screen potential VOCs, methane (as percent LEL), percent oxygen, carbon monoxide, and hydrogen sulfide. All meter readings for VOCs, methane (as percent LEL), carbon monoxide, and hydrogen sulfide obtained during the November 2024 screening event were reported as non-detect or trace (i.e., typically less than 1 ppm) inside all buildings that were screened which indicates that no vapor intrusion is occurring. Percent oxygen was also consistently measured at approximately 20.9% throughout the buildings during indoor air screening activities.
- Based on the indoor air screening results discussed above, indoor air sampling is not proposed at this time as there is no evidence of vapor intrusion inside of the buildings in OU-4 and OU-5.

2. **Indoor Air Sampling Update**

   Kindly clarify the date of the last indoor air sampling event in OU-4 and OU-5. Based on the timeline, we anticipate the need for updated indoor air data to evaluate the effectiveness of the existing Soil Vapor Extraction (SVE) system in mitigating vapor intrusion. NYSDEC request that new indoor air samples be collected and analyzed accordingly.

   Response:

- The buildings in OU-4 and OU-5, which are zoned for industrial and commercial use, include warehouses, garages, and office spaces. The occupied portions of these buildings are screened annually in accordance with the FR-VIWP and Hazard Notification Plan, as detailed above. The most recent indoor air screening results are summarized above and detailed in the 2024 Soil Vapor Report. Aside from the abovementioned indoor air screening, indoor air sampling has not been performed during any of the prior soil vapor sampling events since it is not included in the requirements of the FR-VIWP or Hazard Notification Plan. The next indoor air screening is currently scheduled to be performed in 4Q 2025.
- Based on the indoor air screening results discussed above, indoor air sampling is not proposed at this time as there is no evidence of vapor intrusion inside of the buildings in OU-4 and OU-5. The results of indoor air sampling, if conducted, would likely be impacted by other indoor air sources associated with the ongoing third-party industrial and commercial activities in OU-4 and OU-5.

3. **SVE Design Parameters**

   To support a comprehensive review of the SVE system's performance, please provide the system design parameters, specifically the radius of influence for each SVE well in OU-4 and OU-5. This information is critical in assessing system coverage and overall effectiveness.

   Response:

   - Of OU-4 and OU-5, the current SVE system is only connected to SVE and vacuum-enhanced recovery (VER) wells in OU-5. Although the soil vapor extraction system does not extend into OU-4, all occupied buildings within the historical footprint of ExxonMobil's operations in OU-4 have mitigation including vapor barrier and SSDSs.
   - The following documents summarize the design and estimated radius of influence for SVE points located in OU-5:
     1. Soil Vapor Extraction Pilot Study Results (OU-5) Summary Report (Pilot Study Report) dated December 4, 2013;
     2. OU-5 Soil Vapor Extraction System Expansion Completion Report dated September 2, 2014; and
     3. The most recent OU-4 and OU-5 Annual Soil Vapor Report dated April 8, 2025. This report summarizes the data collected during the Fourth Quarter of 2024 and provides an updated OU-5 SVE system and vacuum enhanced recovery performance evaluation.

4. **Active SSD System**

   Active SSDS system will be required for any proposed future development in OU-4. Evaluation of existing structures may be requested upon review of the information requestion under Items 1 through 3 above.

   Response:

   - Passive sub-slab depressurization systems (SSDSs) are currently installed beneath 5 buildings, including three in OU-4 (300 North Henry St, 206 North Henry St, and

360 Kingsland) and two in OU-5 (359 Kingsland Ave and 301 Norman Ave), all of which are inspected annually. Additionally, the proposed remedies described in the OU-4 Alternative Analysis Report (AAR), the 410 Kingsland Ave Interim Soil Management Plan, and OU-5 AAR currently require the installation of a passive SSDS beneath all future buildings constructed in OU-4 and OU-5 with potential for conversion to active systems, if needed.

Should you have any questions or require clarification regarding the comments provided, please feel free to reach out. We kindly request that the necessary information be submitted prior to our upcoming meeting scheduled for July 15 to allow sufficient time for review and to ensure a meaningful and well-informed discussion during the meeting.

RAFI ALAM *(he/him/his)*
Project Manager, Division of Environmental Remediation

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NEW YORK STATE | Department of Environmental Conservation

KATHY HOCHUL
Governor

AMANDA LEFTON
Commissioner

SENT VIA EMAIL

September 19, 2025

ExxonMobil Environmental and Property Solutions Company
Michael J. Burghardt
38 Varick Street
Brooklyn, New York 11222

Re: ExxonMobil Greenpoint Petroleum Remediation Project
Site Code: (S224150)
Soil Vapor Intrusion (SVI) Matrices, and
2024 Q2 Soil Vapor Report

Dear Mr. Burghardt,

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has reviewed ExxonMobil's July 9, 2025, response to DEC's June 5, 2025, comments regarding the NYSDOH Soil Vapor Intrusion (SVI) Matrices and the 2024 Q2 Soil Vapor Report. Our detailed comments are provided below:

Comment #1:

- **Regarding the following ExxonMobil response:** *"To utilize the February 2024 NYSDOH SVI Matrices to retroactively evaluate the 2024 Soil Vapor Report data, it is proposed that the existing shallow soil vapor monitoring points adjacent to the buildings in OU-4 and OU-5 be considered as an equivalent to sub-slab vapor points for this evaluation".*

  NYSDEC And NYSDOH Response: Sampling soil vapor at locations adjacent to buildings in OU-4 and OU-5 does not accurately represent the soil vapor conditions directly beneath building slabs. The guidance matrices are not intended for comparison with soil vapor data. Permanent sub-slab soil vapor

sampling points within each building would be necessary to collect accurate data. Please note that SVI sampling should be conducted during the heating season. In addition, all future reports need to use the February 2024 NYSDOH SVI Matrices to evaluate data for mitigation decision-making purposes.

- **Regarding the following ExxonMobil response:** *"Based on the indoor air screening results discussed above, indoor air sampling is not proposed at this time as there is no evidence of vapor intrusion inside of the buildings in OU-4 and OU-5"*

  NYSDEC And NYSDOH Response: Indoor air screening using a photoionization detector (PID) does not substitute for a comprehensive SVI investigation. Sampling should be performed and compared against the Final Guidance for Evaluating Soil Vapor Intrusion in the State of New York (2006, with updates). This investigation should occur during the heating season.

Comment#2:

- **Regarding the following ExxonMobil response:** *"Based on the indoor air screening results discussed above, indoor air sampling is not proposed at this time as there is no evidence of vapor intrusion inside of the buildings in OU-4 and OU-5"*

  NYSDEC and NYSDOH Response: The 2024 Soil Vapor Report indicates elevated concentrations of chlorinated solvents, including tetrachloroethene (PCE) and trichloroethene (TCE), in soil vapor samples collected adjacent to buildings in OU-4 and OU-5. These findings suggest the potential for vapor intrusion within the buildings. A comprehensive SVI investigation, including concurrent and co-located and sub-slab soil vapor and indoor air samples located within buildings in OU-4 and OU-5, would be needed to determine the extent of this possible condition.

- **Regarding the following ExxonMobil response:** *"The results of indoor air sampling, if conducted, would likely be impacted by other indoor air sources associated with the ongoing third-party industrial and commercial activities in OU-4 and OU-5."*

  NYSDEC and NYSDOH Response: Please provide clarification on current occupancy, operational status, and activities within each distinct building or warehouse located in OU-4 and OU-5. Please provide a figure to depict the building location and operational status.

Comment#3:

The Soil Vapor Extraction (SVE) Pilot Study Results (OU-5) Summary Report, dated December 4, 2013, does not include radius of influence (ROF) figures for two buildings west of Kingsland Avenue within OU-5. Please clarify why these buildings were excluded from the pilot study and indicate whether SVE wells were subsequently proposed for installation. Additionally, confirm whether these buildings currently have sub-slab depressurization systems (SSDSs) in place.

Comment#4

- **Regarding the following ExxonMobil response:** "*Passive sub-slab depressurization systems (SSDSs) are currently installed beneath 5 buildings, including three in OU-4 (300 North Henry St, 206 North Henry St, and 360 Kingsland) and two in OU-5 (359 Kingsland Ave and 301 Norman Ave), all of which are inspected annually. Additionally, the proposed remedies described in the OU-4 Alternative Analysis Report (AAR), the 410 Kingsland Ave Interim Soil Management Plan, and OU-5 AAR currently require the installation of a passive SSDS beneath all future buildings constructed in OU-4 and OU-5 with potential for conversion to active systems, if needed."*

NYSDEC and NYSDOH response: Based on the available information, NYSDEC and NYSDOH have determined that active SSDSs will be required for all future development in OU-4. Furthermore, an evaluation of existing structures may be required, pending review of the information requested in Comments #1 through #3 above.

Please provide a written response to these comments along with the requested clarifications and supporting documentation. If you have any questions regarding this communication, please email me at rafi.alam@dec.ny.gov or call me at (518)-402-8606.

Sincerely,



Rafi Alam
Project Manager, Bureau B
Department of Environmental Remediation

EC: H. Dudek – NYSDEC
L. Gorton - NYSDEC
D. Scott – NYSDEC
S. McLaughlin - NYSDOH
A. Keegan - NYSDOH
S. Bogardus – NYSDOH
C. Lind / D. Shin / A. Baris – ROUX
J. Lee – ExxonMobil
B. Cervi - WSP

APPENDIX B

Abbreviated Indoor Air Quality Questionnaire and
Building Inventory Form – May 2010

Soil Vapor Intrusion - Structure Sampling Building Questionnaire **Structure ID :** _____

Site No. : _____ **Site Name** : _____

Date: _____ **Time:** _____

Structure Address : _____

Preparer's Name & Affiliation : _____

Residential ? ☐ **Yes** ☐ **No** **Owner Occupied ?** ☐ **Yes** ☐ **No** **Owner Interviewed ?** ☐ **Yes** ☐ **No**

Commercial ? ☐ **Yes** ☐ **No** **Industrial ?** ☐ **Yes** ☐ **No** **Mixed Uses ?** ☐ **Yes** ☐ **No**

Identify all non-residential use(s) : _____

Owner Name : _____ **Owner Phone** : ( ) _____ - _____

Secondary Owner Phone : ( ) _____ - _____

Owner Address (if different) : _____

Occupant Name : _____ **Occupant Phone** : ( ) _____ - _____

Secondary Occupant Phone : ( ) _____ - _____

Number & Age of All Persons Residing at this Location : _____

Additional Owner/Occupant Information : _____

Describe Structure (style, number floors, size) : _____

_____

Approximate **Year Built** : _____ Is the building **Insulated**? ☐ Yes ☐ No

Lowest level : ☐ Slab-on-grade ☐ Basement ☐ Crawlspace

Describe Lowest Level (finishing, use, time spent in space) : _____

_____

Floor Type: ☐ Concrete Slab ☐ Dirt ☐ Mixed : _____

Floor Condition : ☐ Good (few or no cracks) ☐ Average (some cracks) ☐ Poor (broken concrete or dirt)

Sumps/Drains? ☐ Yes ☐ No Describe : _____

Identify other floor penetrations & details : _____

_____

Wall Construction : ☐ Concrete Block ☐ Poured Concrete ☐ Laid-Up Stone

Identify any wall penetrations : _____

_____

Identify water, moisture, or seepage: location & severity (sump, cracks, stains, etc) : _____

_____

Heating Fuel : ☐ Oil ☐ Gas ☐ Wood ☐ Electric ☐ Other : _____

Heating System : ☐ Forced Air ☐ Hot Water ☐ Other : _____

Hot Water System : ☐ Combustion ☐ Electric ☐ Boilermate ☐ Other: _____

Clothes Dryer : ☐ Electric ☐ Gas Where is dryer **vented** to? _____

If combustion occurs, describe where air is drawn from (cold air return, basement, external air, etc.) : _____

_____

Fans & Vents (identify where fans/vents pull air from and where they vent/exhaust to) : _____

_____

Describe factors that may affect indoor air quality (chemical use/storage, unvented heaters, smoking, workshop):

Attached garage ? ☐ Yes ☐ No Air fresheners ? ☐ Yes ☐ No

New carpet or furniture ? ☐ Yes ☐ No What/Where ? _____

Recent **painting** or **staining** ? ☐ Yes ☐ No Where ? : _____

Any **solvent** or **chemical-like** odors ? ☐ Yes ☐ No Describe : _____

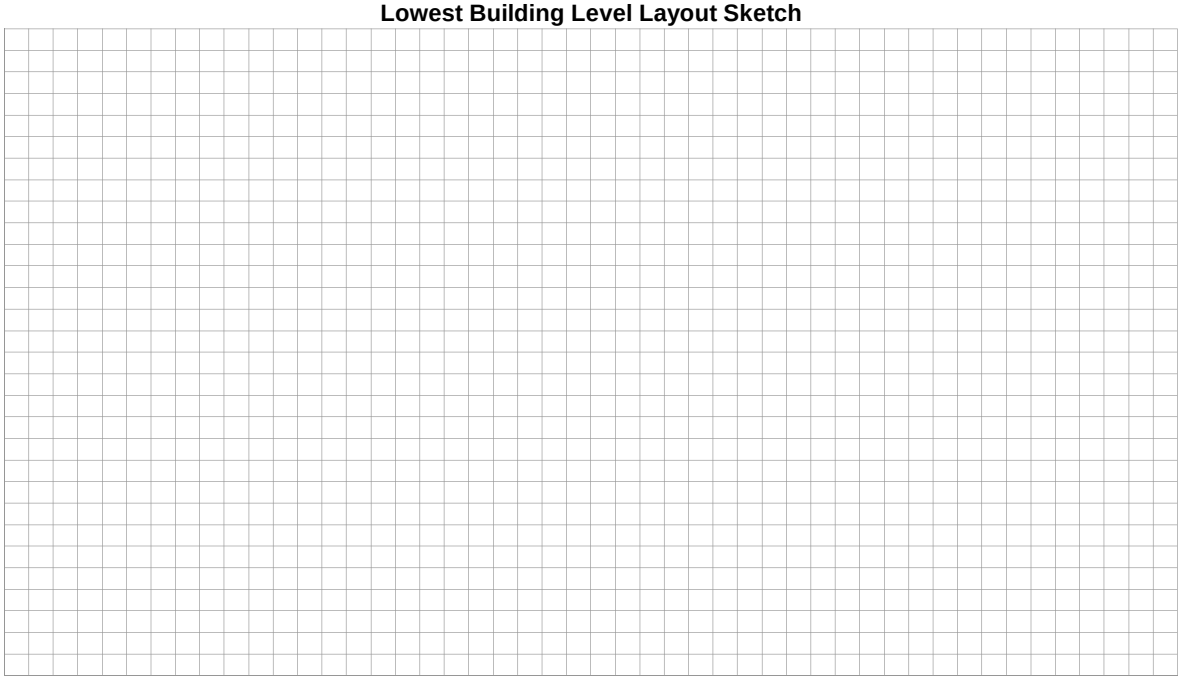
Last time **Dry Cleaned** fabrics brought in ? _____ What / Where ? _____

Do any building occupants use solvents at work ? ☐ Yes ☐ No Describe : _____

Any testing for Radon ? ☐ Yes ☐ No Results : _____

Radon System/Soil Vapor Intrusion Mitigation System present ? ☐ Yes ☐ No If yes, describe below

Lowest Building Level Layout Sketch



- Identify and label the locations of all sub-slab, indoor air, and outdoor air samples on the layout sketch.
- Measure the distance of all sample locations from identifiable features, and include on the layout sketch.
- Identify room use (bedroom, living room, den, kitchen, etc.) on the layout sketch.
- Identify the locations of the following features on the layout sketch, using the appropriate symbols:

B or **F**	Boiler or Furnace	o	Other floor or wall penetrations (label appropriately)
HW	Hot Water Heater	**xxxxxxx**	Perimeter Drains (draw inside or outside outer walls as appropriate)
FP	Fireplaces	######	Areas of broken-up concrete
WS	Wood Stoves	● SS-1	Location & label of sub-slab vapor samples
W/D	Washer / Dryer	● IA-1	Location & label of indoor air samples
S	Sumps	● OA-1	Location & label of outdoor air samples
@	Floor Drains	● PFET-1	Location and label of any pressure field test holes.

Structure Sampling - Product Inventory

Homeowner Name & Address: _____ **Date:** _____

Samplers & Company: _____ **Structure ID:** _____

Site Number & Name: _____ **Phone Number:** _____

Make & Model of PID: _____ **Date of PID Calibration:** _____

Identify any Changes from Original Building Questionnaire : _____

Product Name/Description	Quantity	Chemical Ingredients	PID Reading	Location

PLATES

1. 372 Greenpoint Avenue Proposed Sampling Locations
2. 332 Monitor Street Proposed Sampling Locations
3. 306 North Henry Street Proposed Sampling Locations
4. 359 Kingsland Avenue Proposed Sampling Locations
5. 301 Norman Avenue Proposed Sampling Locations
6. 297 Norman Avenue Proposed Sampling Locations
7. 271 Norman Avenue Proposed Sampling Locations
8. 360 Kingsland Avenue Proposed Sampling Locations
9. 362 Kingsland Avenue Proposed Sampling Locations
10. 410 Kingsland Avenue Proposed Sampling Locations



LEGEND

- STAIRWAY
- DOORWAY
- WALL
- DRAIN/FLOOR PENETRATION
- INACCESSIBLE AREA
- APPROXIMATE PROPOSED SAMPLING LOCATION

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.
4. THE CENTER OF THE BUILDING IS DESIGNATED AS AN INACCESSIBLE AREA BASED ON DISCUSSIONS WITH THE PROPERTY OWNER. THE CENTER AREA IS FREQUENTLY UTILIZED AS A DRIVING PATH FOR WAREHOUSE VEHICLES DURING ROUTINE OPERATIONS.

N

10' 0 10'

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DRAWING DATE:	24JUNE26	PRINT TYPE:	CLR
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DRAWING FILE:	0172.0030E5356.02.DWG		

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Roux Environmental Engineering and Geology, D.P.C.
209 SHAFTER STREET ISLANDIA NEW YORK 11749
(631) 232-2600

PROJECT NAME:
SCRAP KING-372 GREENPOINT AVENUE
BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
372 GREENPOINT AVENUE
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

DRAWING NO.
1
DRAWING 1 OF 10

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LEGEND

- DOORWAY
- WALL
- DRAIN/FLOOR PENETRATION
- INACCESSIBLE AREA
- APPROXIMATE PROPOSED SAMPLING LOCATION

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.

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PROJECT NAME:
BROADWAY STAGES-332 MONITOR STREET
BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
332 MONITOR STREET
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

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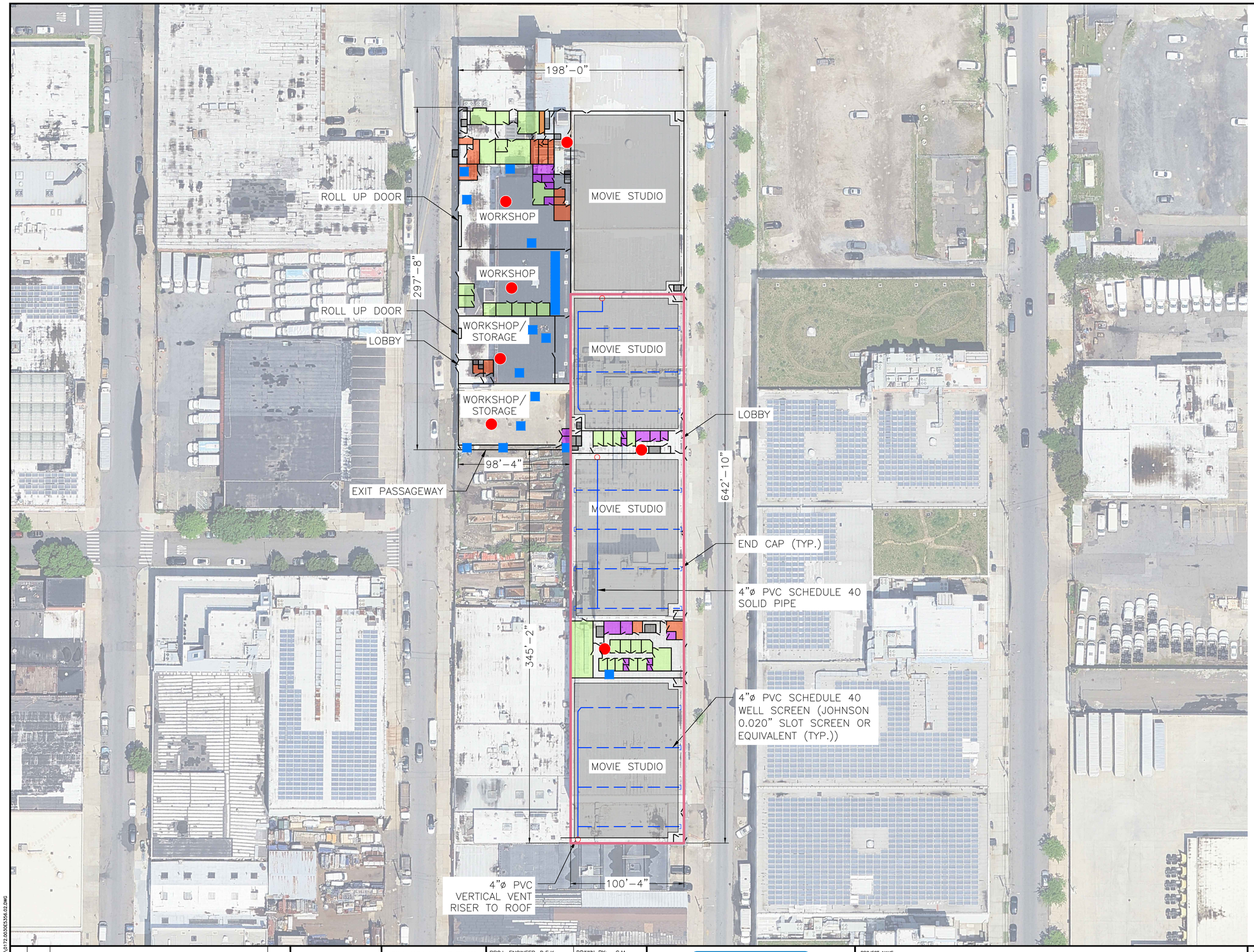

LEGEND

- STAIRWAY
- DOORWAY
- WALL
- UTILITY ROOM
- OFFICE/EQUIPMENT ROOM
- BATHROOM
- INACCESSIBLE AREA
- APPROXIMATE PROPOSED SAMPLING LOCATION
- SUB-SLAB DEPRESSURIZATION SYSTEM PIPING LOCATION
- SUB-SLAB DEPRESSURIZATION SYSTEM RISER TO ROOF
- EXTENT OF SOIL VAPOR BARRIER

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.
4. SAMPLING LOCATIONS ARE PROPOSED OUTSIDE OF ROOMS DESIGNATED AS MOVIE STUDIOS AT THE REQUEST OF THE PROPERTY OWNER TO AVOID DISRUPTION OF ROUTINE OPERATIONS AT THE PROPERTY. BASED ON THIS REQUEST, MOVIE STUDIO ROOMS ARE DEEMED AS INACCESSIBLE AREAS WITH THE EXCEPTION OF WALKING PATHS ALONG THE EDGES OF EACH MOVIE STUDIO ROOM WHICH RANGE IN WIDTH FROM APPROXIMATELY 5 TO 10 FEET.

N

40' 0 40'

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PROJECT NAME:
BROADWAY STAGES-306 NORTH HENRY STREET
BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
306 NORTH HENRY STREET
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

DRAWING NO.
3
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3 OF 10

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LEGEND

- STAIRWAY
- DOORWAY
- WALL
- UTILITY ROOM
- OFFICE/EQUIPMENT ROOM
- BATHROOM
- INACCESSIBLE AREA
- APPROXIMATE PROPOSED SAMPLING LOCATION
- SUB-SLAB DEPRESSURIZATION SYSTEM PIPING LOCATION
- SUB-SLAB DEPRESSURIZATION SYSTEM RISER TO ROOF
- EXTENT OF SOIL VAPOR BARRIER

NOTE

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2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.
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BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
359 KINGSLAND AVENUE
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

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DRAWING 4 OF 10

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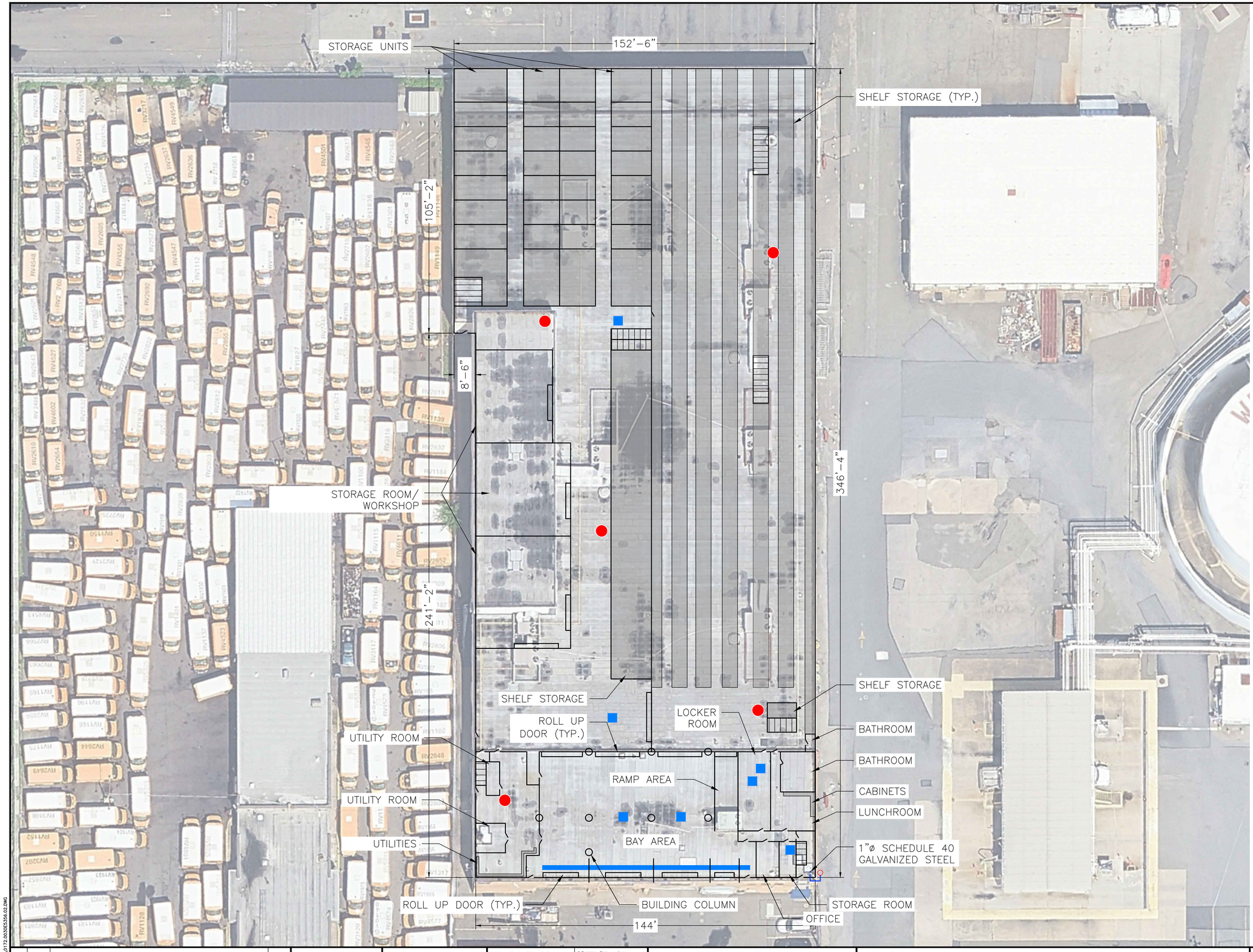

LEGEND

- STAIRWAY
- DOORWAY
- WALL
- LOCATION OF BUILDING COLUMN
- DRAIN/FLOOR PENETRATION
- INACCESSIBLE AREA
- APPROXIMATE PROPOSED SAMPLING LOCATION
- SUB-SLAB DEPRESSURIZATION SYSTEM PIPING LOCATION
- SUB-SLAB DEPRESSURIZATION SYSTEM RISER TO ROOF

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.

NO.	DATE	REVISION DESCRIPTION	INT.

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DESIGNED BY:	J.W.	CHECKED BY:	J.K.
DRAWING SCALE:	AS SHOWN	PLOT SCALE:	1:1
DRAWING DATE:	24JUNE26	PRINT TYPE:	CLR
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PROJECT NO.:	0172.0030Y121		
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ROUX
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Engineering and Geology, D.P.C.
209 SHAFTER STREET ISLANDIA NEW YORK 11749
(631) 232-2600

PROJECT NAME:
CADOGAN TATE-301 NORMAN AVENUE
BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
301 NORMAN AVENUE
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

DRAWING NO.
5
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5 OF 10

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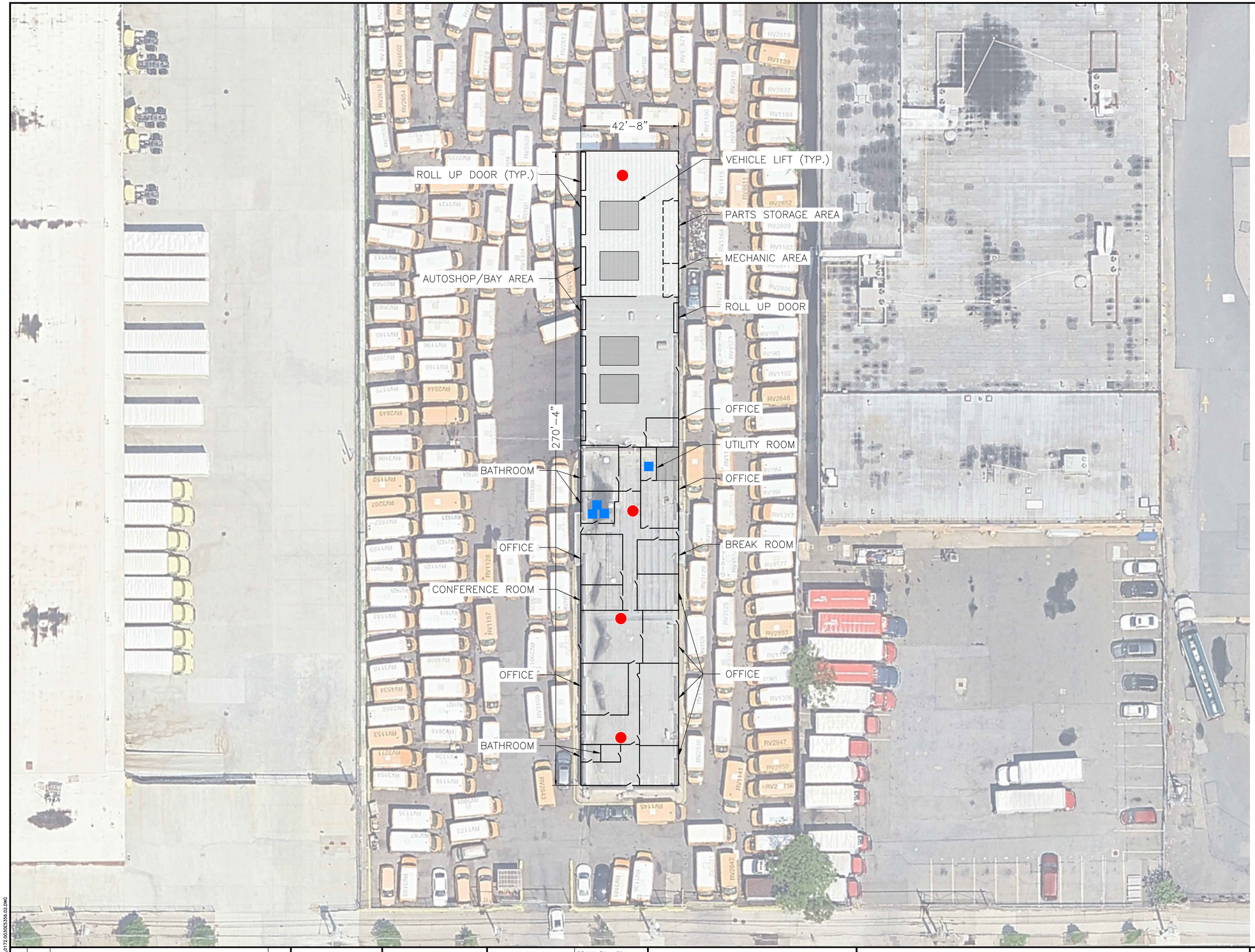

LEGEND

- FENCED ENCLOSURE
- DOORWAY
- WALL
- DRAIN/FLOOR PENETRATION
- INACCESSIBLE AREA
- APPROXIMATE PROPOSED SAMPLING LOCATION

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.

N

20' 0 20'

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PROJECT NAME:
297 NORMAN AVENUE
BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
297 NORMAN AVENUE
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

DRAWING NO.
6
DRAWING 6 OF 10

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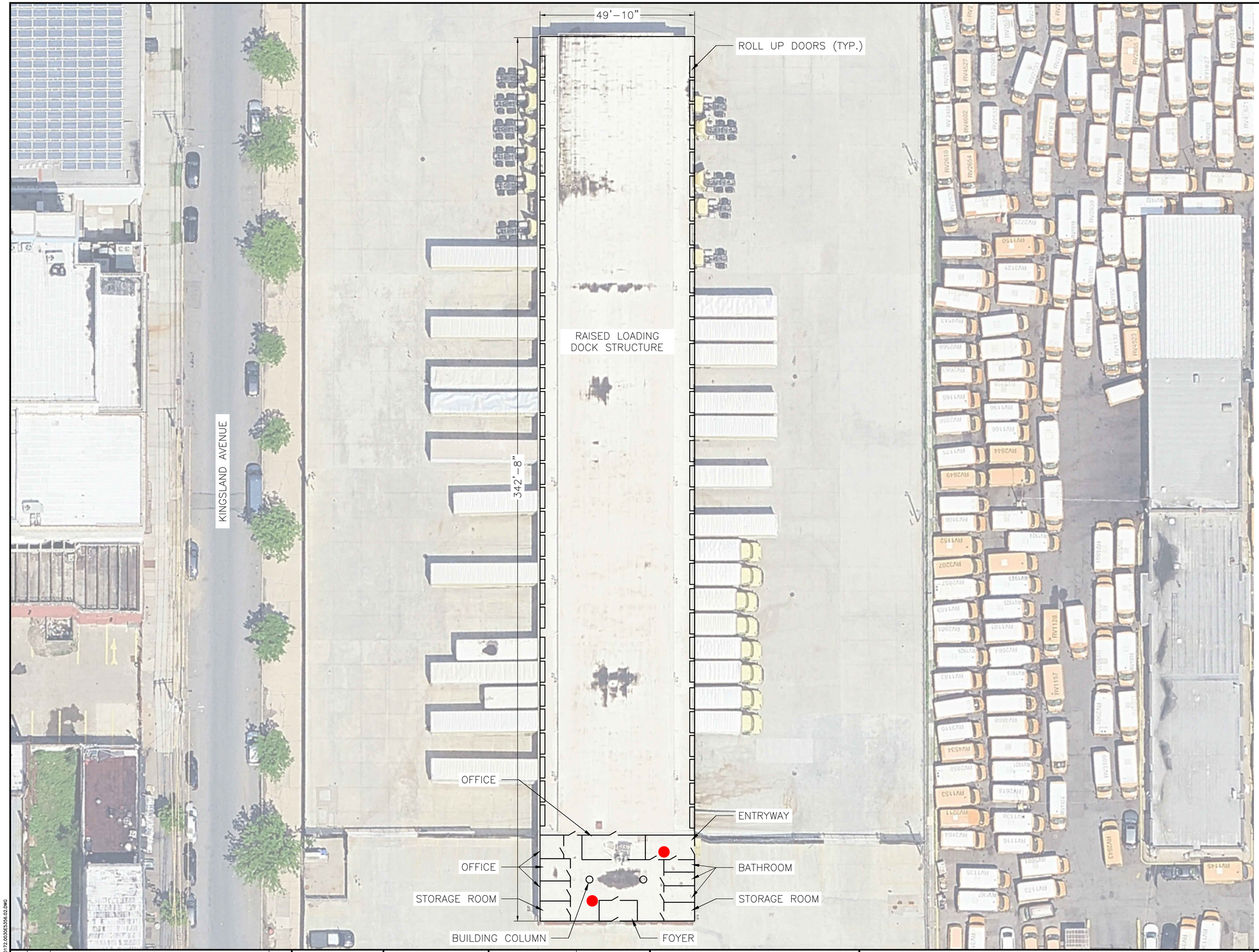

LEGEND

- DOORWAY
- WALL
- LOCATION OF BUILDING COLUMN
- APPROXIMATE PROPOSED SAMPLING LOCATION

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.
4. BASED DISCUSSIONS WITH PERSONNEL AT 271 NORMAN AVENUE PROPERTY AND A FIELD INSPECTION, THE RAISED LOADING DOCK PORTION OF THE BUILDING SITS ON A SOLID CONCRETE SLAB WHICH IS APPROXIMATELY FOUR FEET THICK. THEREFORE, NO SAMPLING IS PROPOSED WITHIN THIS PORTION OF THE BUILDING.

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PROJECT NAME:
CROWN-271 NORMAN AVENUE
BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
271 NORMAN AVENUE
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

DRAWING NO.
7
DRAWING 7 OF 10

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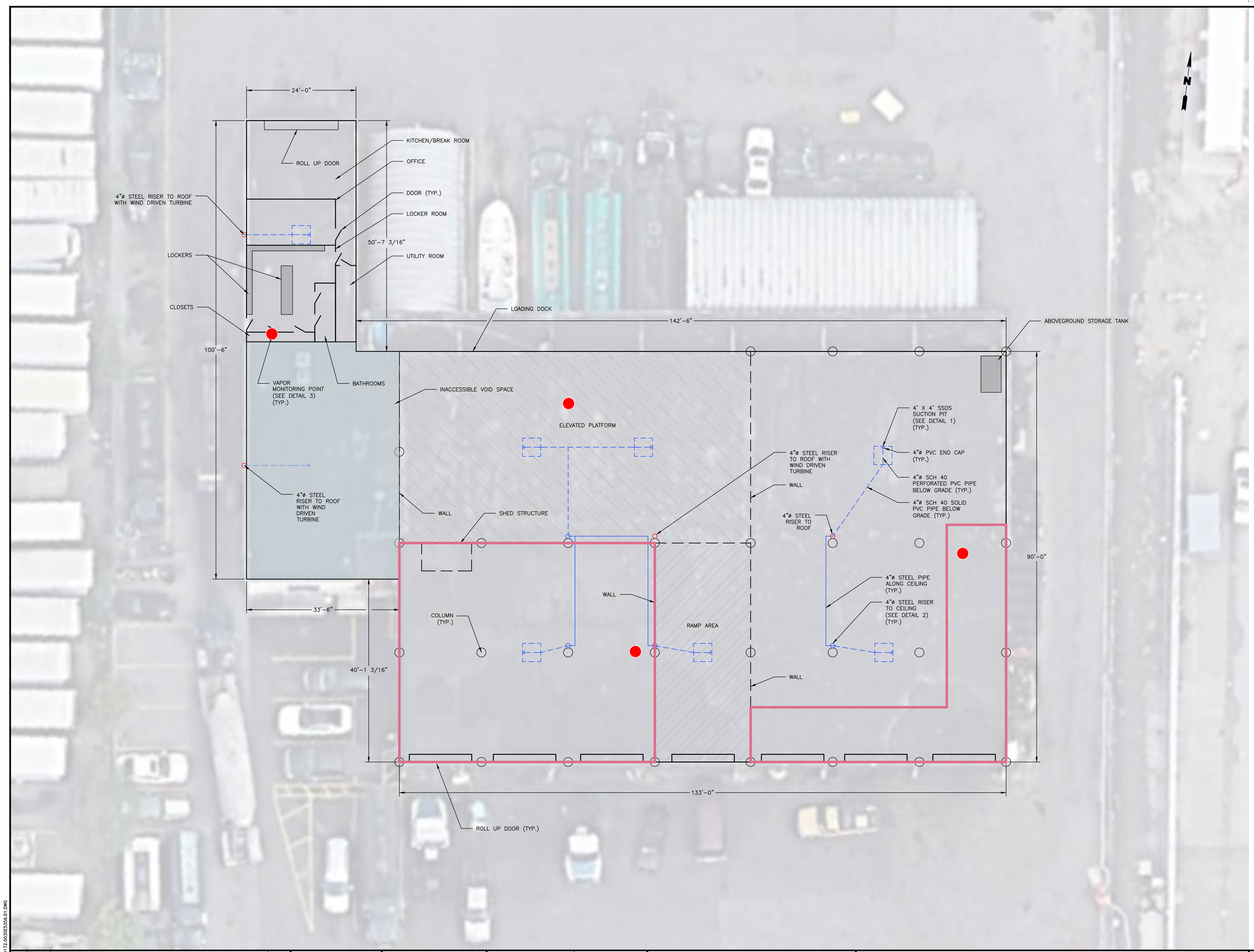

LEGEND

- WALL
- LOCATION OF BUILDING COLUMNS
- INACCESSIBLE AREA
- APPROXIMATE PROPOSED SAMPLING LOCATION
- SUB-SLAB DEPRESSURIZATION SYSTEM PIPING LOCATION
- SUB-SLAB DEPRESSURIZATION SYSTEM RISER TO ROOF
- EXTENT OF SOIL VAPOR BARRIER

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.

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PROJECT NO.:	0172.0030Y121		
DRAWING FILE:	0172.0030E5356.01.DWG		

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(631) 232-2600

PROJECT NAME:
360 KINGSLAND AVENUE
BROOKLYN, NY

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
360 KINGSLAND AVENUE
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

DRAWING NO.
8
DRAWING 8 OF 10

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LEGEND

- STAIRWAY
- DOORWAY
- WALL
- FENCED ENCLOSURE
- DRAIN/FLOOR PENETRATION
- INACCESSIBLE AREA
- APPROXIMATE PROPOSED SAMPLING LOCATION

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB–SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.

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209 SHAFTER STREET ISLANDIA NEW YORK 11749
(631) 232-2600

PROJECT NAME:
MENDON-372 KINGSLAND AVENUE
BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
372 KINGSLAND AVENUE
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

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9
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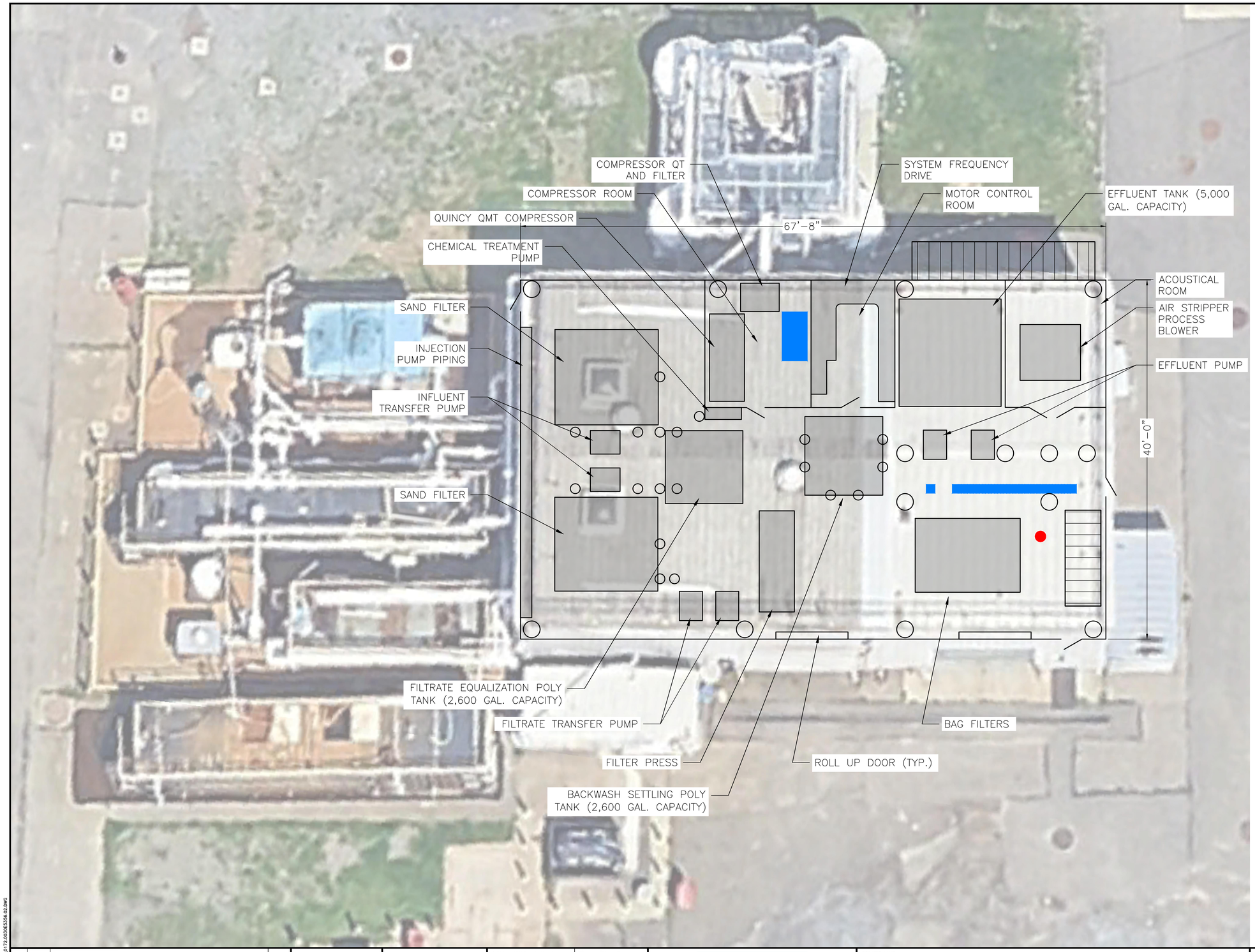

LEGEND

- WALL
- DOORWAY
- DRAIN/FLOOR PENETRATION
- INACCESSIBLE AREA
- LOCATION OF BUILDING COLUMN/FOOTING
- APPROXIMATE PROPOSED SAMPLING LOCATION

NOTE

1. BUILDING FLOOR PLAN IS REFLECTIVE OF GROUND FLOOR LEVEL.
2. ONE SUB-SLAB SAMPLE AND ONE INDOOR AIR SAMPLE WILL BE COLLECTED AT EACH SAMPLING LOCATION.
3. ONE AMBIENT AIR SAMPLE WILL BE COLLECTED FROM UPWIND OF THE BUILDING AT THE TIME OF THE SAMPLING EVENT.

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PROJECT NO.: 0172.0030Y121			
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PROJECT NAME:
ON-SITE RECOVERY CONTAINMENT SYSTEM-400 KINGSLAND AVENUE
BROOKLYN, NEW YORK

PROJECT FOR:
EXXON MOBIL CORPORATION
BROOKLYN, NEW YORK

TITLE:
PROPOSED SAMPLING LOCATIONS
400 KINGSLAND AVENUE
EXXONMOBIL GREENPOINT PETROLEUM REMEDIATION PROJECTS
GREENPOINT, BROOKLYN, NEW YORK

DRAWING NO.
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