DECISION DOCUMENT

16-63 Cody Avenue Site
Brownfield Cleanup Program
Ridgewood, Queens County
Site No. C241279
August 2024

Prepared by
Division of Environmental Remediation
New York State Department of Environmental Conservation

DECLARATION STATEMENT - DECISION DOCUMENT

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Brownfield Cleanup Program
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Site No. C241279
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Statement of Purpose and Basis

This document presents the remedy for the 16-63 Cody Avenue Site a brownfield cleanup site. The remedial program was chosen in accordance with the New York State Environmental Conservation Law and Title 6 of the Official Compilation of Codes, Rules and Regulations of the State of New York (6 NYCRR) Part 375.

This decision is based on the Administrative Record of the New York State Department of Environmental Conservation (NYSDEC) for the 16-63 Cody Avenue Site and the public's input to the proposed remedy presented by NYSDEC.

Description of Selected Remedy

The elements of the selected remedy are as follows:

1. **Remedial Design**

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.
- Additionally, to incorporate green remediation principles and techniques to the extent

feasible in the future development at this site, any future on-site buildings will include, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), SiteWise™ (available in the Sustainable Remediation Forum [SURF] library) or similar NYSDEC accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

Additionally, the remedial design program will include a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial design program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

2. Excavation

The existing on-site building(s) will be demolished and materials which cannot be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy. Excavation and off-site disposal of contaminant source areas (soil impacted with CVOCs), including soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards. In areas where permeable pavers will be installed, soil in the upper two feet which exceed the restricted residential SCOs will be excavated and transported off-site for disposal. Approximately 580 cubic yards of soil will be disposed of off-Site. Collection and analysis of confirmation samples at the remedial excavation depth will be used to verify that SCOs for the site have been achieved. If confirmation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify NYSDEC, submit the sample results and, and in consultation with NYSDEC, determine if further remedial excavation is necessary. Further excavation for development will proceed after confirmation samples demonstrate that SCOs for the site have been achieved.

3. Backfill

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d)(1) will be brought in to replace the excavated soil and establish the designed grades at the site.

4. Vapor Mitigation

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

5. Soil Vapor Extraction (SVE)

Soil vapor extraction (SVE) will be implemented to remove volatile organic compounds (VOCs) from the subsurface and to prevent off-site migration of contaminated soil vapor. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

6. Cover System

A site cover will be required in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs), to allow for future restricted residential use of the site. Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

7. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH; and
- require compliance with the Department approved Site Management Plan.

8. Site Management Plan

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

a. an 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: The Environmental Easement discussed in Paragraph 8 above.
   - Engineering Controls: The site-wide cover system discussed in paragraph 6, and the vapor mitigation (SMDS) and SVE discussed in Paragraph 4 &5.

   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;
   - Any future on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the buildings.
   - a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 6 above will be placed in any areas where the upper one feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
   - 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. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - monitoring of groundwater and soil vapor (SVE) to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to the Department.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - procedures for operating and maintaining the remedy;
   - compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting,
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.

Declaration

The remedy conforms with promulgated standards and criteria that are directly applicable, or that are relevant and appropriate and takes into consideration Department guidance, as appropriate. The remedy is protected of public health and the environment.

August 15, 2024

Date

Jane O'Connell
Remedial Remediation Engineer Region 2

DECISION DOCUMENT

16-63 Cody Avenue Site
Ridgewood, Queens County
Site No. C241279
August 2024

SECTION 1: SUMMARY AND PURPOSE

The New York State Department of Environmental Conservation (NYSDEC), in consultation with the New York State Department of Health (NYSDOH), has selected a remedy for the above referenced site. The disposal of contaminants at the site has resulted in threats to public health and the environment that would be addressed by the remedy. The disposal or release of contaminants at this site, as more fully described in this document, has contaminated various environmental media. Contaminants include hazardous waste and/or petroleum.

The New York State Brownfield Cleanup Program (BCP) is a voluntary program. The goal of the BCP is to enhance private-sector cleanups of brownfields and to reduce development pressure on "greenfields." A brownfield site is real property, where a contaminant is present at levels exceeding the soil cleanup objectives or other health-based or environmental standards, criteria or guidance, based on the reasonably anticipated use of the property.

NYSDEC has issued this document in accordance with the requirements of New York State Environmental Conservation Law and 6 NYCRR Part 375. This document is a summary of the information that can be found in the site-related reports and documents.

SECTION 2: CITIZEN PARTICIPATION

NYSDEC seeks input from the community on all remedies. A public comment period was held, during which the public was encouraged to submit comment on the proposed remedy. All comments on the remedy received during the comment period were considered by NYSDEC in selecting a remedy for the site. Site-related reports and documents were made available for review by the public at the following document repositories:

DECInfo Locator - Web Application
https://gisservices.dec.ny.gov/gis/dil/index.html?rs=C241279

Queens Public Library at Ridgewood
20-12 Madison Street
Queens, NY 11385
Phone: (718) 821-4770

Borough of Queens, Community Board 5
61-23 Myrtle Avenue
Glendale, NY 11385
Phone: (718) 366-1834

Receive Site Citizen Participation Information By Email

Please note that NYSDEC's Division of Environmental Remediation (DER) is "going paperless" relative to citizen participation information. The ultimate goal is to distribute citizen participation information about contaminated sites electronically by way of county email listservs. Information will be distributed for all sites that are being investigated and cleaned up in a particular county under the State Superfund Program, Environmental Restoration Program, Brownfield Cleanup Program and Resource Conservation and Recovery Act Program. We encourage the public to sign up for one or more county listservs at http://www.dec.ny.gov/chemical/61092.html

SECTION 3: SITE DESCRIPTION AND HISTORY

Location: The approximate 19,900-square-foot (0.44 acres) brownfield site is located at 16-63 Cody Avenue in the Ridgewood neighborhood of Queens, New York, and is identified as Block 3556 and Lot 61 on the New York City Tax Map. The site is bound to north by one two-story residential building, one two-story mixed-use residential/commercial building, and one automobile repair facility, to the west by a recycling facility, to the east by Cody Avenue followed by elevated railroad tracks, and to the south by a one-story industrial building.

Site Features: The site is comprised of an approximate 12,060-square foot one- and two-story vacant manufacturing warehouse on the southern portion of the property and an associated at grade asphalt paved parking area on the northern portion. The building was most recently operated by two woodworking tenants and affiliated office spaces on the first floor, offices and a residential living space on the second floor. A partial basement is present under the southern portion of the building and consists of mechanical spaces and storage. The asphalt paved portion of the property was operated as a parking lot for a car storage tenant with a storage shed in the northwestern corner.

Current Zoning and Land Use: The brownfield site is located in a M1-4D manufacturing district which allows for residential uses. No environmental restrictions are currently associated with the property. The adjoining parcels and surrounding area are of mixed use including residential, industrial, and commercial uses.

Past Use of the Site: Prior to the most recent woodworking operations which began in 2009, historic uses that may have contributed to the site contamination include a laundry facility, heating and air conditioning manufacturer and other miscellaneous manufacturing.

Historic uses of adjacent properties that may have contributed to the site contamination include an auto repair facility to the west; garages with gasoline tanks and manufacturing to the south; and electronic product manufacturing, iron works, and other miscellaneous manufacturing to the

north.

Site Geology and Hydrogeology: Based on borings completed during the Phase II Environmental Investigation (EI) in 2022, the Remedial Investigation (RI) in 2023 and in 2024, the subsurface stratigraphy at the site consists of fill material, generally consisting of sand with concrete, scrap metal, and brick fragments beneath the manufacturing warehouse, beneath the basement slab, within the sidewalk of Cody Avenue, and on the western portion of the building exterior, to depths ranging from approximately 1.5 to 15.5 feet below grade. The fill is underlain by a silty sand with cobbles and boulders that extended to the termination depths of all borings, which ranged from 15 to 110 feet below grade.

The "Surficial Geologic Map of New York" by the New York State Museum State Geological Survey indicates that the surficial geology at the site consists of till moraine which is generally an impermeable layer comprised of variable sorted clasts. According to the "Bedrock and Engineering Geologic Maps of New York County" by Charles A. Baskerville the site is underlain by the Hartland Formation which consists of interbedded units of feldspar, schist, and amphibolite.

Perched groundwater was encountered at two temporary monitoring wells in the northern portion of the site between 18 and 18.8 feet below sidewalk level (bsl) during the Phase II. Groundwater was encountered between elevation (el) 13.49 to el 15.08 feet NAVD88 (between 60.07 and 61.81 feet below sidewalk level) during the RI. Based on area topography and observed water level measurements, groundwater flow is to the southeast. Based on area topography, observed water level measurements, and the proximity of the site to Fresh Creek, groundwater flow is to the southeast.

Site location maps are attached as Figure 1 and 2.

SECTION 4: LAND USE AND PHYSICAL SETTING

NYSDEC may consider the current, intended, and reasonably anticipated future land use of the site and its surroundings when evaluating a remedy for soil remediation. For this site, an alternative that restricts the use of the site to restricted-residential use (which allows for commercial use and industrial use) as described in Part 375-1.8(g) was evaluated in addition to an alternative which would allow for unrestricted use of the site.

A comparison of the results of the Remedial Investigation (RI) to the appropriate standards, criteria and guidance values (SCGs) for the identified land use and the unrestricted use SCGs for the site contaminants is available in the RI Report.

SECTION 5: ENFORCEMENT STATUS

The Applicant under the Brownfield Cleanup Agreement is a Volunteer. The Applicant does not have an obligation to address off-site contamination. However, the Department, in consultation with NYSDOH on April 16, 2024, has determined that this site poses a significant threat to public health or the environment; accordingly, an enforcement action is necessary.

The Department will seek to identify any parties (other than the Volunteer) known or suspected to be responsible for contamination at or emanating from the site, referred to as Potentially Responsible Parties (PRPs). The Department will bring an enforcement action against the PRPs. If an enforcement action cannot be brought or does not result in the initiation of a remedial program by any PRPs, the Department will evaluate the off-site contamination for action under the State Superfund. The PRPs are subject to legal actions by the State for recovery of all response costs the State incurs or has incurred.

SECTION 6: SITE CONTAMINATION

6.1: Summary of the Remedial Investigation

A remedial investigation (RI) serves as the mechanism for collecting data to:

- characterize site conditions;
- determine the nature of the contamination; and
- assess risk to human health and the environment.

The RI is intended to identify the nature (or type) of contamination which may be present at a site and the extent of that contamination in the environment on the site, or leaving the site. The RI reports on data gathered to determine if the soil, groundwater, soil vapor, indoor air, surface water or sediments may have been contaminated. Monitoring wells are installed to assess groundwater and soil borings or test pits are installed to sample soil and/or waste(s) identified. If other natural resources are present, such as surface water bodies or wetlands, the water and sediment may be sampled as well. Based on the presence of contaminants in soil and groundwater, soil vapor will also be sampled for the presence of contamination. Data collected in the RI influence the development of remedial alternatives. The RI report is available for review in the site document repository and the results are summarized in section 6.3.

The analytical data collected on this site includes data for:

- groundwater
- soil
- soil vapor
- indoor air
- sub-slab vapor

6.1.1: Standards, Criteria, and Guidance (SCGs)

The remedy must conform to promulgated standards and criteria that are directly applicable or that are relevant and appropriate. The selection of a remedy must also take into consideration guidance, as appropriate. Standards, Criteria and Guidance are hereafter called SCGs.

To determine whether the contaminants identified in various media are present at levels of concern, the data from the RI were compared to media-specific SCGs. NYSDEC has developed

SCGs for groundwater, surface water, sediments, and soil. The NYSDOH has developed SCGs for drinking water and soil vapor intrusion. For a full listing of all SCGs see: http://www.dec.ny.gov/regulations/61794.html

6.1.2: RI Results

The data have identified contaminants of concern. A "contaminant of concern" is a contaminant that is sufficiently present in frequency and concentration in the environment to require evaluation for remedial action. Not all contaminants identified on the property are contaminants of concern. The nature and extent of contamination and environmental media requiring action are summarized below. Additionally, the RI Report contains a full discussion of the data. The contaminant(s) of concern identified at this site is/are:

tetrachloroethene (PCE)
trichloroethene (TCE)
1,2,4-trimethylbenzene
1,3,5-trimethylbenzene
n-propylbenzene

The contaminant(s) of concern exceed the applicable SCGs for:

- groundwater
- soil
- soil vapor intrusion
- indoor air

6.2: Interim Remedial Measures

An interim remedial measure (IRM) is conducted at a site when a source of contamination or exposure pathway can be effectively addressed before issuance of the Decision Document.

The following will be completed at this site based on conditions observed during the RI.

IRM Groundwater Treatment

In-situ chemical reduction (ISCR) and Enhanced Reductive Dechlorination will be implemented to treat areas with CVOCs in groundwater (in perched, shallow and intermediate groundwater). A chemical reducing agent will be injected into the subsurface to destroy the contaminants and a carbon source solution will be added into the subsurface to promote microbe growth. Areas with petroleum VOCs in groundwater will be treated by enhanced aerobic biodegredation via the placement of an oxygen release compound (ORC), or similar material into the subsurface to promote aerobic biodegredation. Results will be documented in the Final Engineering Report.

Prior to the full implementation of these technology, laboratory and on-site pilot scale studies will be conducted to more clearly define design parameters. Between the pilot and the full-scale implementations, it is estimated that three (3) shallow and one (1) intermediate injection points will be installed. Monitoring will be required up-gradient, down-gradient, within the treatment zone for contaminants of concern, dissolved oxygen and oxidation/reduction potential.

Additional treatment, as necessary based on the result of the initial treatment, may be completed under the IRM Work Plan or the Site Management Plan.

6.3: Summary of Environmental Assessment

This section summarizes the assessment of existing and potential future environmental impacts presented by the site. Environmental impacts may include existing and potential future exposure pathways to fish and wildlife receptors, wetlands, groundwater resources, and surface water. The RI report presents a detailed discussion of any existing and potential impacts from the site to fish and wildlife receptors.

Nature and Extent of Contamination: The primary contaminants of concern present on-site include chlorinated volatile organic compounds (VOCs), petroleum VOCs, and semi-volatile organic compounds (SVOCs) detected in soil; chlorinated VOCs and petroleum VOCs in groundwater; and chlorinated VOCs in soil vapor and in collocated sub-slab soil vapor and indoor air.

Soil: The highest concentrations of chlorinated VOCs on-site were detected within shallow non-native material in the northwestern portion of the Site at depths ranging between 1 to 7 feet bsl. Tetrachloroethene (PCE) was identified at a maximum concentration of 32 ppm, which exceeds the applicable restricted-residential use soil cleanup objective (RRSCO) of 19 ppm and protection of groundwater soil cleanup objective (PGWSCO) of 1.3 ppm. Trichloroethene (TCE) was identified at a maximum concentration of 43 ppm, which exceeds the applicable RRSCO of 21 ppm and PGWSCO of 0.47 ppm. Cis-1,2-Dichloroethene (DCE) was identified at a maximum concentration of 7 ppm, which exceeds the applicable PGW SCO of 0.25 ppm.

The highest concentrations of petroleum VOCs were detected at a depth ranging between 65 and 67 feet bsl in the central portion of the site. 1,2,4-Trimethylbenzene (1,2,4-TMB) was identified at a maximum concentration of 890 ppm, which exceeds the applicable RRSCO of 52 ppm and PGWSCO of 3.6 ppm. 1,3,5-Trimethylbenzene (1,3,5-TMB) was identified at a maximum concentration of 240 ppm, which exceeds the applicable RRSCO of 52 ppm and PGWSCO of 8.4 ppm. N-Propylbenzene was identified at a maximum concentration of 140 ppm, which exceeds the applicable RRSCO of 100 ppm and PGW SCO of 3.9 ppm.

The highest concentrations of SVOCs were identified in impacted shallow non-native material between 1 and 7 feet bgs in the northern and central portions of the site and beneath the existing basement slab in the southern portion of the site. Benzo(a)anthracene was identified at a maximum concentration of 4.5 ppm, which exceeds the applicable RRSCO of 1 ppm and PGW SCO of 1 ppm. Benzo(a)pyrene was identified at a maximum concentration of 4.4 ppm, which exceeds the applicable RRSCO of 1 ppm. Benzo(b)fluoranthene was identified at a maximum concentration of 5.5 ppm, which exceeds the applicable RRSCO of 1 ppm and PGWSCO of 1.7 ppm. Chrysene was identified at a maximum concentration of 4.4 ppm, which exceeds the applicable RRSCO of 3.9 ppm and PGWSCO of 1 ppm. Dibenz(a,h)anthracene was identified at a maximum concentration of 0.66 ppm, which exceeds the applicable RRSCO of 0.33 ppm. Indeno(1,2,3 cd) pyrene was identified at a maximum concentration of 3.3 ppm, which exceeds the applicable RRSCO of 0.5 ppm.

The highest concentration of metals was identified in impacted shallow non-native material between 1 and 4 feet bgs in the northern, central, and western portions of the site. Arsenic was identified at a maximum concentration of 102 ppm, which exceeds the applicable RRSCO of 16 ppm. Barium was identified at a maximum concentration of 1140 ppm, which exceeds the applicable RRSCO of 400 ppm. Chromium, Trivalent was identified at a maximum concentration of 239 ppm, which exceeds the applicable RRSCO of 180 ppm. Lead was identified at a maximum concentration of 499 ppm, which exceeds the applicable RRSCO of 400 ppm.

Pesticides / polychlorinated biphenyls (PCBs)/ per- and polyfluoroalkyl substances (PFAS) were not detected or were detected at levels far below RRSCO and PGWSCOs s in soil.

Data does not indicate any off-site impacts in soil related to the site.

Groundwater: The highest concentrations of chlorinated VOCs were detected exceeding the NYSDEC Ambient Water Quality Standards and Guidance Value (AWQSGV) within shallow monitoring wells on the western portion of the site. PCE was identified at a maximum concentration of 260 ug/l, which exceeds the SGV of 5 ug/l. TCE was identified at a maximum concentration of 84 ug/l, which exceeds the SGV of 5 ug/l. PCE and TCE were not detected above the SGVs in the intermediate or deep monitoring wells, with the exception of PCE detected above the SGV within one intermediate monitoring well in the southwestern portion of the site. Chloroform was identified in the shallow, intermediate, and deep groundwater monitoring wells on the northwestern portion of the site at a maximum concentration of 54 ug/l, which exceeds the SGV of 7 ug/l.

The highest concentrations of petroleum VOCs were detected within four shallow groundwater monitoring wells. Petroleum VOCs were detected above the AWQSGV at these two isolated locations, including but not limited to: 1,2,4- TMB at a maximum concentration of 300 ug/l, which exceeds the SGV of 5 ug/l; 1,3,5-TMB at a maximum concentration of 80 ug/l, which exceeds the SGV of 5 ug/l; ethylbenzene at a maximum concentration of 67 ug/L, which exceeds the SGV of 5 ug/L; total xylenes, at a maximum concentration of 210 ug/L, which exceeds the SGV of 5 ug/L; and n-propylbenzene at a maximum concentration of 39 ug/l, which exceeds the SGV of 5 ug/l. PFOS was detected at a maximum concentration of 0.00599 ug/l, which exceeds the SGV of 0.0027 ug/l. PFOA was detected at a maximum concentration of 0.0533 ug/l, which exceeds the SGV of 0.0067 ug/l.

Data indicates the potential for off-site impacts in groundwater related to the site.

Soil Vapor /Sub-Slab Soil Vapor /Indoor Air: Total chlorinated VOCs concentrations were detected within soil vapor, sub-slab soil vapor and indoor air throughout the Site. PCE was detected in soil vapor samples at concentrations up to 6,560 ug/m3, in sub-slab soil vapor samples up to 346,000 ug/m3, and in indoor air samples up to 2,350 ug/m3, respectively. TCE was detected in soil vapor samples at concentrations up to 9,620 ug/m3, in sub-slab soil vapor samples up to 5,480 ug/m3, in indoor air samples up to 83.8 ug/m3, respectively.

Data indicates the potential for off-site impacts in soil vapor related to the site.

6.4: Summary of Human Exposure Pathways

This human exposure assessment identifies ways in which people may be exposed to site-related contaminants. Chemicals can enter the body through three major pathways (breathing, touching or swallowing). This is referred to as *exposure.*

The site is vacant, and redevelopment is planned. Direct contact with contaminants in the soil is unlikely because the site is covered with buildings and pavement. Contaminated groundwater at the site is not used for drinking or other purposes and the site is served by a public water supply that obtains water from a different source not affected by this contamination. Volatile organic compounds in soil vapor (air spaces within the soil) may move into buildings and affect the indoor air quality. This process, which is similar to the movement of radon gas from the subsurface into the indoor air of buildings, is referred to as soil vapor intrusion. The site is vacant so inhalation of site contaminants in indoor air via vapor intrusion is not a current concern. However, the potential exists for inhalation of site contaminants due to soil vapor intrusion for any future on-site development. In addition, sampling indicates soil vapor intrusion from site contamination is a potential concern for off-site buildings.

6.5: Summary of the Remediation Objectives

The objectives for the remedial program have been established through the remedy selection process stated in 6 NYCRR Part 375. The goal for the remedial program is to restore the site to pre-disposal conditions to the extent feasible. At a minimum, the remedy shall eliminate or mitigate all significant threats to public health and the environment presented by the contamination identified at the site through the proper application of scientific and engineering principles.

The remedial action objectives for this site are:

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 ground water 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.

SECTION 7: ELEMENTS OF THE SELECTED REMEDY

The alternatives developed for the site and the evaluation of the remedial criteria are presented in the Alternative Analysis. The remedy is selected pursuant to the remedy selection criteria set forth in DER-10, Technical Guidance for Site Investigation and Remediation and 6 NYCRR Part 375.

The selected remedy is a Track 4: Restricted Residential use with site-specific soil cleanup objectives remedy.

The selected remedy is referred to as the Soil Excavation, Site Cover and Soil Vapor Extraction & Mitigation (SVE & SMDS) remedy.

The elements of the selected remedy, as shown in Figures 3, 4, and 5 are as follows:

1. Remedial Design

A remedial design program will be implemented to provide the details necessary for the construction, operation, optimization, maintenance, and monitoring of the remedial program. Green remediation principles and techniques will be implemented to the extent feasible in the design, implementation, and site management of the remedy as per DER-31. The major green remediation components are as follows;

- Considering the environmental impacts of treatment technologies and remedy stewardship over the long term;
- Reducing direct and indirect greenhouse gases and other emissions;
- Increasing energy efficiency and minimizing use of non-renewable energy;
- Conserving and efficiently managing resources and materials;
- Reducing waste, increasing recycling and increasing reuse of materials which would otherwise be considered a waste;
- Maximizing habitat value and creating habitat when possible;
- Fostering green and healthy communities and working landscapes which balance ecological, economic and social goals; and
- Integrating the remedy with the end use where possible and encouraging green and sustainable re-development.

- Additionally, to incorporate green remediation principles and techniques to the extent feasible in the future development at this site, any future on-site buildings will include, at a minimum, to meet the 2020 Energy Conservation Construction Code of New York (or most recent edition) to improve energy efficiency as an element of construction.

As part of the remedial design program, to evaluate the remedy with respect to green and sustainable remediation principles, an environmental footprint analysis will be completed. The environmental footprint analysis will be completed using an accepted environmental footprint analysis calculator such as SEFA (Spreadsheets for Environmental Footprint Analysis, USEPA), SiteWise™ (available in the Sustainable Remediation Forum [SURF] library) or similar NYSDEC accepted tool. Water consumption, greenhouse gas emissions, renewable and non-renewable energy use, waste reduction and material use will be estimated, and goals for the project related to these green and sustainable remediation metrics, as well as for minimizing community impacts, protecting habitats and natural and cultural resources, and promoting environmental justice, will be incorporated into the remedial design program, as appropriate. The project design specifications will include detailed requirements to achieve the green and sustainable remediation goals. Further, progress with respect to green and sustainable remediation metrics will be tracked during implementation of the remedial action and reported in the Final Engineering Report (FER), including a comparison to the goals established during the remedial design program.

Additionally, the remedial design program will include a climate change vulnerability assessment, to evaluate the impact of climate change on the project site and the proposed remedy. Potential vulnerabilities associated with extreme weather events (e.g., hurricanes, lightning, heat stress and drought), flooding, and sea level rise will be identified, and the remedial design program will incorporate measures to minimize the impact of climate change on potential identified vulnerabilities.

2. Excavation

The existing on-site building(s) will be demolished and materials which cannot be beneficially reused on site will be taken off-site for proper disposal in order to implement the remedy. Excavation and off-site disposal of contaminant source areas (soil impacted with CVOCs), including soils which exceed the protection of groundwater soil cleanup objectives (PGWSCOs), as defined by 6 NYCRR Part 375-6.8 for those contaminants found in site groundwater above standards. In areas where permeable pavers will be installed, soil in the upper two feet which exceed the restricted residential SCOs will be excavated and transported off-site for disposal. Approximately 580 cubic yards of soil will be disposed of off-Site. Collection and analysis of confirmation samples at the remedial excavation depth will be used to verify that SCOs for the site have been achieved. If confirmation sampling indicates that SCOs were not achieved at the stated remedial depth, the Applicant must notify NYSDEC, submit the sample results and, and in consultation with NYSDEC, determine if further remedial excavation is necessary. Further excavation for development will proceed after confirmation samples demonstrate that SCOs for the site have been achieved.

3. Backfill

Clean fill meeting the requirements of 6 NYCRR Part 375-6.7(d)(1) will be brought in to replace the excavated soil and establish the designed grades at the site.

4. Vapor Mitigation

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

5. Soil Vapor Extraction (SVE)

Soil vapor extraction (SVE) will be implemented to remove volatile organic compounds (VOCs) from the subsurface and to prevent off-site migration of contaminated soil vapor. VOCs will be physically removed from the soil by applying a vacuum to wells that have been installed into the vadose zone (the area below the ground but above the water table). The vacuum draws air through the soil matrix which carries the VOCs from the soil to the SVE well. The air extracted from the SVE wells is then treated as necessary prior to being discharged to the atmosphere.

6. Cover System

A site cover will be required in areas where the upper two feet of exposed surface soil will exceed the applicable soil cleanup objectives (SCOs), to allow for future restricted residential use of the site. Where a soil cover is to be used it will be a minimum of two feet of soil placed over a demarcation layer, with the upper six inches of soil of sufficient quality to maintain a vegetative layer. Soil cover material, including any fill material brought to the site, will meet the SCOs for cover material for the use of the site as set forth in 6 NYCRR Part 375-6.7(d). Substitution of other materials and components may be allowed where such components already exist or are a component of the tangible property to be placed as part of site redevelopment. Such components may include, but are not necessarily limited to: pavement, concrete, paved surface parking areas, sidewalks, building foundations and building slabs.

7. Institutional Control

Imposition of an institutional control in the form of an environmental easement for the controlled property which will:

- require the remedial party or site owner to complete and submit to the Department a periodic certification of institutional and engineering controls in accordance with Part 375-1.8 (h)(3);
- allow the use and development of the controlled property for restricted residential use as defined by Part 375-1.8(g), although land use is subject to local zoning laws;
- restrict the use of groundwater as a source of potable or process water, without necessary water quality treatment as determined by the NYSDOH or NYCDOHMH; and
- require compliance with the Department approved Site Management Plan.

8. Site Management Plan

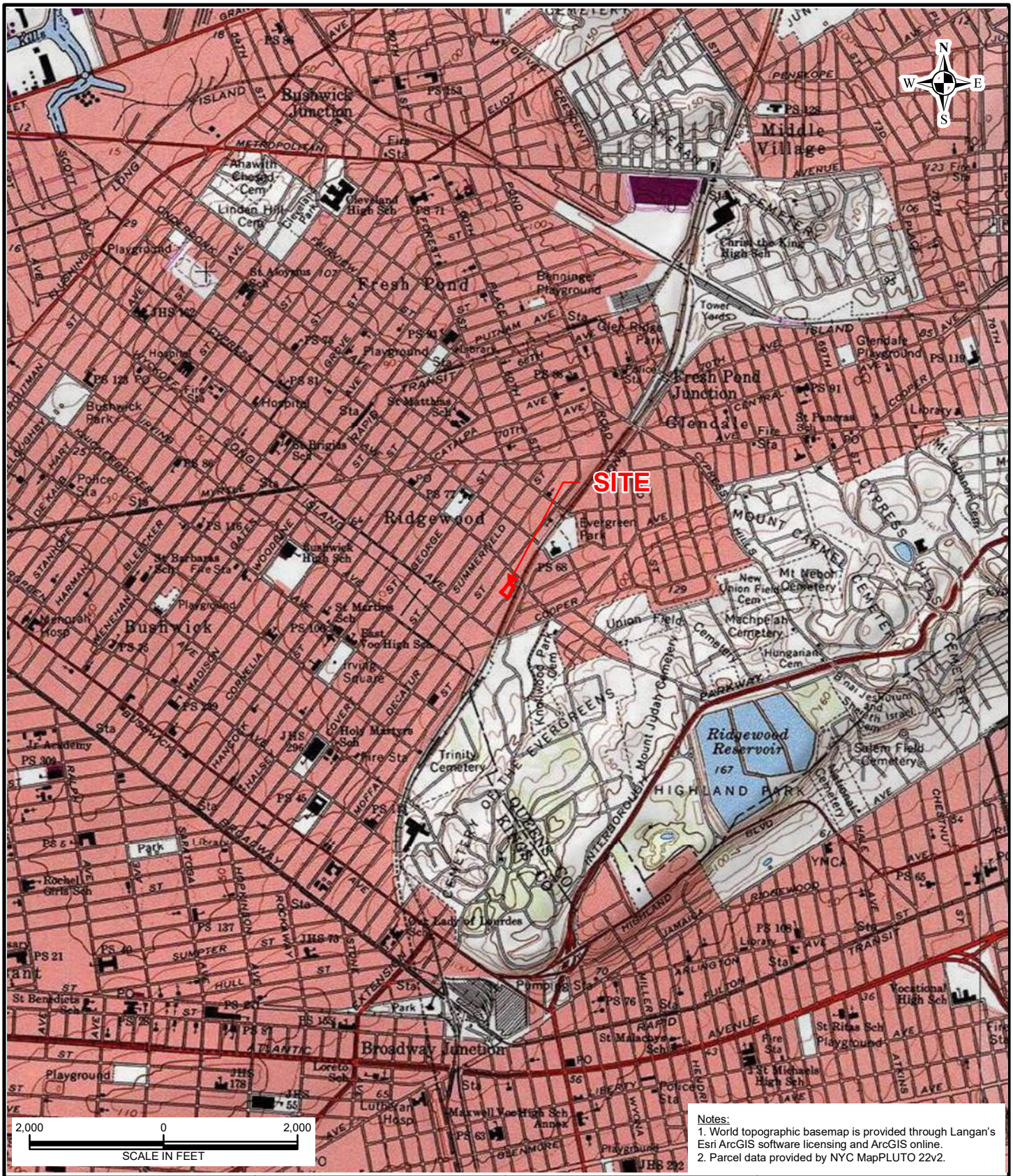
A Site Management Plan is required, which includes the following:

a. an 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: The Environmental Easement discussed in Paragraph 8 above.
   - Engineering Controls: The site-wide cover system discussed in paragraph 6, and the vapor mitigation (SMDS) and SVE discussed in Paragraph 4 &5.

   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;
   - Any future on-site buildings will be required to have a sub-slab depressurization system, or other acceptable measures, to mitigate the migration of vapors into the buildings.
   - a provision that should a building foundation or building slab be removed in the future, a cover system consistent with that described in Paragraph 6 above will be placed in any areas where the upper one feet of exposed surface soil exceed the applicable soil cleanup objectives (SCOs);
   - 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. a Monitoring Plan to assess the performance and effectiveness of the remedy. The plan includes, but may not be limited to:
   - monitoring of groundwater and soil vapor (SVE) to assess the performance and effectiveness of the remedy;
   - a schedule of monitoring and frequency of submittals to the Department.

c. An Operation and Maintenance (O&M) Plan to ensure continued operation, maintenance, optimization, monitoring, inspection, and reporting of any mechanical or physical components of the remedy. The plan includes, but is not limited to:
   - procedures for operating and maintaining the remedy;
   - compliance monitoring of treatment systems to ensure proper O&M as well as providing the data for any necessary permit or permit equivalent reporting,
   - maintaining site access controls and Department notification; and
   - providing the Department access to the site and O&M records.



Notes:
1. World topographic basemap is provided through Langan's Esri ArcGIS software licensing and ArcGIS online.
2. Parcel data provided by NYC MapPLUTO 22v2.

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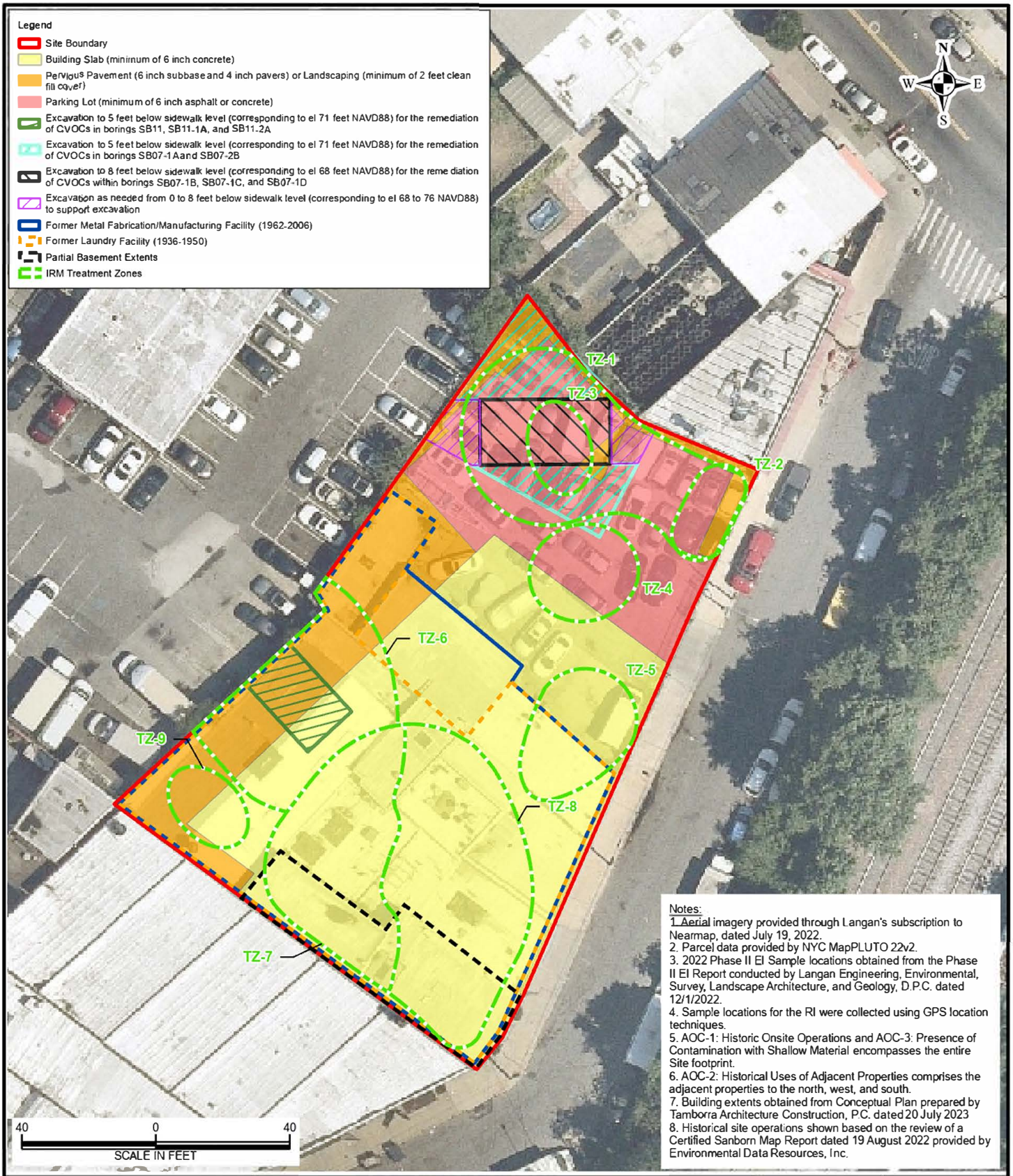
Langan Engineering & Environmental Services, Inc.
Langan Engineering, Environmental, Surveying and Landscape Architecture, D.P.C.
Langan International LLC
Collectively known as Langan

NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

Project	16-63 CODY AVENUE BLOCK 3556, LOT 61 QUEENS NEW YORK
Drawing Title	SITE LOCATION MAP
Project No.	101015501
Date	7/18/2023
Scale	1" = 2,000'
Drawn By	IHB
Last Revised	
Figure	1

Path: \\Langan.com\data\PAR\data5\101015501\Project Data\ArcGIS\MXD\Environmental_Figures\2023-07 RIR\Figure 1 - Site Location Map.mxd

Figure 2 - Site Plan



Notes:
1. Aerial imagery provided through Langan's subscription to Nearmap, dated July 19, 2022.
2. Parcel data provided by NYC MapPLUTO 22v2.
3. 2022 Phase II EI Sample locations obtained from the Phase II EI Report conducted by Langan Engineering, Environmental, Survey, Landscape Architecture, and Geology, D.P.C. dated 12/1/2022.
4. Sample locations for the RI were collected using GPS location techniques.
5. AOC-1: Historic Onsite Operations and AOC-3: Presence of Contamination with Shallow Material encompasses the entire Site footprint.
6. AOC-2: Historical Uses of Adjacent Properties comprises the adjacent properties to the north, west, and south.
7. Building extents obtained from Conceptual Plan prepared by Tamborra Architecture Construction, P.C. dated 20 July 2023
8. Historical site operations shown based on the review of a Certified Sanborn Map Report dated 19 August 2022 provided by Environmental Data Resources, Inc.

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Collectively known as Langan
NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

Project
16-63 CODY AVENUE
BLOCK 3556, LOT 61
QUEENS NEW YORK

Drawing Title
ALTERNATIVE II - TRACK 4 CLEANUP

Project No.	101015501
Date	3/8/2023
Scale	1" = 40'
Drawn By	IHB
Last Revised	

Figure
3

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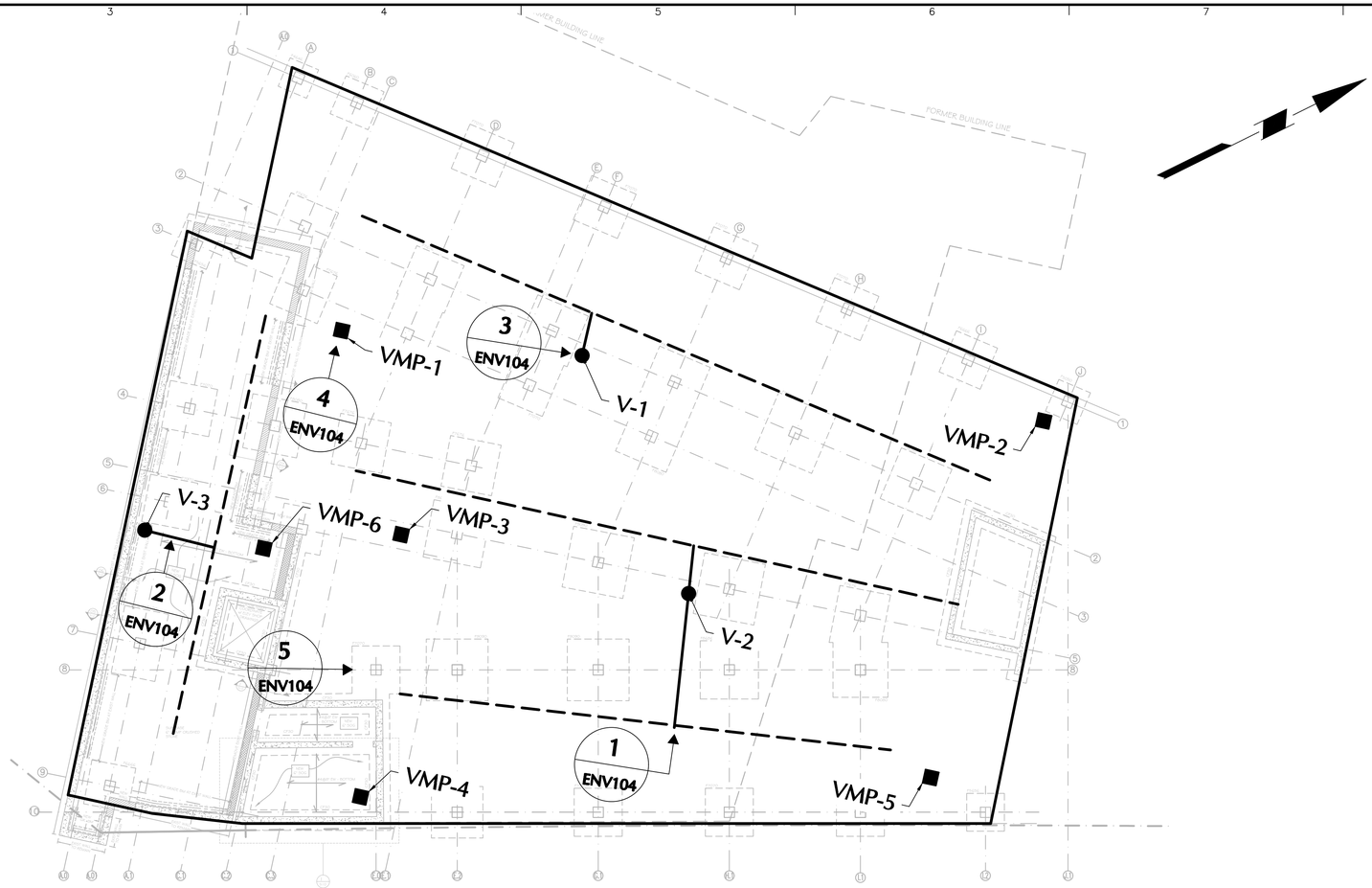
LEGEND:

- V-1 — VAPOR EXTRACTION POINT RISER [4–INCH SCH. 40 STEEL RISER]
- APPROXIMATE EXTENTS OF VAPOR BARRIER
- HORIZONTAL VAPOR MITIGATION SCREEN [3–INCH SCH. 40 SLOTTED PVC]
- HORIZONTAL SUBHEADER [3–INCH SCH. 40 PVC]
- VMP-1 — VACUUM MONITORING POINT
- 1 / ENV104 — DETAIL CALLOUT



GENERAL NOTES:

1. THE INFORMATION SHOWN IS SCHEMATIC IN NATURE ONLY. THE CONTRACTOR WILL COORDINATE THE EXACT LOCATIONS AND LAYOUT OF THE VENTING SYSTEM COMPONENTS IN THE FIELD BASED ON ACTUAL SITE CONDITIONS AND OTHER PROPOSED WORK.
2. THE BUILDING INFORMATION SHOWN IS FOR REFERENCE ONLY. THE PLAN DOES NOT SHOW EACH AND EVERY CONDITION EXISTING OR PROPOSED AT THE SITE. THE CONTRACTOR WILL CONFIRM THE EXISTING AND PROPOSED SITE CONDITIONS, INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS; STRUCTURAL COMPONENTS; AND ARCHITECTURAL REQUIREMENTS PRIOR TO STARTING INSTALLATION OF THE VENTING SYSTEM COMPONENTS. THE FOUNDATION PLAN REFERENCES WAS INCLUDED AS DRAWING S1 IN THE STRUCTURAL DRAWING SET BY TAMBORRA ARCHITECTURE & CONSTRUCTION, P.C. DATED 11 JANUARY 2024.
3. INSTALLATION OF THE SUB–MEMBRANE DEPRESSURIZATION SYSTEM [SMDS] SHALL BE COORDINATED WITH OTHER MECHANICAL, STRUCTURAL, AND ARCHITECTURAL COMPONENTS, AS APPLICABLE.
4. SYSTEM INSTALLATION SHALL ADHERE TO THE FINAL GUIDANCE FOR EVALUATING SOIL VAPOR INTRUSION IN THE STATE OF NEW YORK, OCTOBER 2006 AND UPDATES, PREPARED BY THE NEW YORK STATE DEPARTMENT OF HEALTH [NYSDOH]; NYC MECHANICAL CODE, CHAPTER 5, SECTION MC 512 – SUB–SLAB EXHAUST SYSTEMS; NYC LOCAL LAW 2009/071; AND ALL APPLICABLE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY [USEPA] AND NYSDOH GUIDANCE.
5. THE FINISHED BUILDING SLAB WILL BE INSPECTED FOR OPEN JOINTS AT WALLS, FOOTINGS, PIPING PENETRATIONS, DRAINS, ETC. OPEN JOINTS WILL BE SEALED TO MINIMIZE POTENTIAL SOIL VAPOR ENTRY POINTS INTO THE STRUCTURE.
6. THE SMDS IS ACTIVE.

VAPOR COLLECTION PIPING NOTES:

1. THE SMDS SHALL CONSIST OF SUB–SLAB VAPOR BARRIER AND SUB–GRADE HORIZONTAL MITIGATION SCREENS WHICH SHALL MANIFOLD WITH SUBHEADER LINES AND VENT THROUGH A VERTICAL RISER. RISERS SHALL RUN ALONG INTERIOR COLUMNS OR WALLS AND PENETRATE THE ROOF DECK. THE VENT RISERS SHALL BE AFFIXED WITH IN–LINE FANS.
2. THE CERTIFIED CLEAN STONE FOR THE VEP CONSTRUCTION SHALL HAVE THE FOLLOWING GRADATION [OR APPROVED EQUAL]:

SIEVE SIZE	% PASSING BY WEIGHT
1 1/2–INCH	100
1–INCH	90–100
1/2–INCH	0–6
#200	<1

3. THE VERTICAL RISER PIPES SHALL BE INSTALLED IN COORDINATION WITH THE ARCHITECTURAL, MECHANICAL, AND STRUCTURAL ELEMENTS. RISER PIPING SHALL BE ROUTED AS DIRECTLY AS POSSIBLE TO THE ROOF, WITH FIELD ADJUSTMENTS AS NEEDED TO MAINTAIN REQUIRED SEPARATION FROM AIR INTAKES, MECHANICAL EQUIPMENT, AND STRUCTURAL ELEMENTS.
4. THE HORIZONTAL VAPOR MITIGATION SCREENS SHALL BE CONSTRUCTED OF 3–INCH SCH. 40 SLOTTED PVC. THE INTERIOR ABOVE GRADE PIPING SHALL BE CONSTRUCTED OF 4–INCH SCH. 40 STEEL [OR APPROVED EQUAL]. THE SUB–SLAB HEADER PIPING SHALL BE CONSTRUCTED OF 3–INCH SCH. 40 PVC [OR APPROVED EQUAL]. THE MAIN HEADER PIPING AT THE ROOF LEVEL SHALL BE CONSTRUCTED OF INSULATED 4–INCH SCH. 40 PVC [OR APPROVED EQUAL].
5. THE SMDS IS INTENDED TO OPERATE ACTIVELY. THE IN–LINE FAN SHALL BE AFFIXED TO THE TOP OF THE VERTICAL VENT RISER. FAN(S) SHALL BE SIZED SUCH THAT IT CAN ACHIEVE APPROXIMATELY 100 STANDARD CUBIC FEET PER MINUTE (SCFM) AT 10 INCHES OF WATER COLUMN VACUUM (IWC). A WIRELESS AUTODIALER SHALL BE PROVIDED FOR REMOTE MONITORING OF THE SYSTEM. THE AUTODIALER WILL CALL OUT TO PRE–PROGRAMMED PHONE NUMBER(S) IN THE EVENT OF A POWER FAILURE, MOTOR OVERLOAD, OR LOW VACUUM AT AN IN–LINE FAN.
6. THE DISCHARGE STACK TERMINATION SHALL BE LOCATED AS FOLLOWS: ABOVE THE HIGHEST PARAPET OR EAVE WITHIN 10 FEET HORIZONTALLY OF THE VENT; AT LEAST 10 FEET HORIZONTALLY FROM, AND NOT DIRECTLY BELOW, ANY OPENING WINDOW, DOOR, AIR INTAKE, OR OTHER OPENING INTO THE BUILDING; AND AT LEAST 10 FEET AWAY FROM ANY ADJACENT BUILDING, SIDEWALK, OR AREA FREQUENTED BY PERSONS ONSITE.
7. VACUUM MONITORING POINTS [VMPS] SHALL BE INSTALLED FOR SUB–SLAB VAPOR AND VACUUM MONITORING. ALL VMPS SHALL BE CONSTRUCTED OF VAPOR PINS®, OR APPROVED EQUAL.

VAPOR BARRIER NOTES:

1. THE VAPOR BARRIER IS TO SPAN THE EXTENTS OF THE BUILDING SLAB. IT SHOULD CONSIST OF A MATERIAL COMPATIBLE WITH THE SITE CONTAMINANTS OF CONCERN AND HAVE A MINIMUM THICKNESS OF 30 MIL OR EQUIVALENT THICKNESS PROVIDING THE SAME PROTECTION. IF THE SELECTED VAPOR BARRIER DOES NOT HAVE AN INHERENT GEOTEXTILE LAYER ABOVE AND BELOW THE VAPOR BARRIER, THEN A GEOTEXTILE WITH A MINIMUM WEIGHT OF 8 OZ/YD2 SHALL BE ADDED BELOW THE VAPOR BARRIER [I.1., BETWEEN THE VENTILATION LAYER AND VAPOR BARRIER].
2. THE VAPOR BARRIER DETAILS SHOWN ARE GENERALIZED IN NATURE AND ARE INTENDED TO INDICATE THE EXTENT AND LOCATIONS OF VAPOR BARRIER. ACTUAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE VAPOR BARRIER MANUFACTURER'S STANDARD DETAILS AND WRITTEN INSTALLATION INSTRUCTIONS.
3. CONTRACTOR SHOP DRAWINGS INDICATING VAPOR BARRIER INSTALLATION DETAILS AND METHODS SHALL BE REVIEWED ABD APPROVED BY THE MATERIAL MANUFACTURER PRIOR TO SUBMITTAL TO THE OWNER'S ENGINEER FOR REVIEW.
4. ALL VAPOR BARRIER ACCESSORY MATERIALS, INCLUDING BUT NOT LIMITED TO TAPE, SEALANT, LIQUID MEMBRANE, ETC. SHALL BE COMPATIBLE WITH AND DESIGNED FOR USE WITH THE SELECTED VAPOR BARRIER.
5. INSTALLED VAPOR BARRIER MATERIALS AND INSTALLATION SHALL HAVE WARRANTIES PROVIDED BY THE INSTALLER NA MANUFACTURER IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
6. THE VAPOR BARRIER SHALL BE INSPECTED FOR HOLES, PUNCTURES, AND GAPS. A SMOKE TEST, OR EQUIVALENT INTEGRITY TEST PER MANUFACTURER'S INSTRUCTIONS, SHALL BE CONDUCTED A MINIMUM OF EVERY 5,000 SQUARE FOOT INTERVAL, AS REQUIRED BY THE VAPOR BARRIER MANUFACTURER. ALL LEAKS SHALL BE PATCHED PER THE MANUFACTURER'S INSTRUCTIONS AND RETESTED.
7. THE VAPOR BARRIER MATERIALS ARE INTENDED TO MITIGATE INTRUSION OF CONTAMINATED SUB–SLAB VAPORS INTO OCCUPIED BUILDING SPACES. IF WATERPROOFING IS ALSO REQUIRED, THIS SHALL BE COORDINATED ACCORDINGLY TO ENSURE COMPATIBLE MATERIALS ARE SELECTED AND APPLIED.

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SCALE IN FEET

Date	Description	No.
REVISIONS		

DRAFT

SIGNATURE DATE SIGNED
JESSICA FRISCIA
PROFESSIONAL ENGINEER NY LIC. No. 099567

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NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

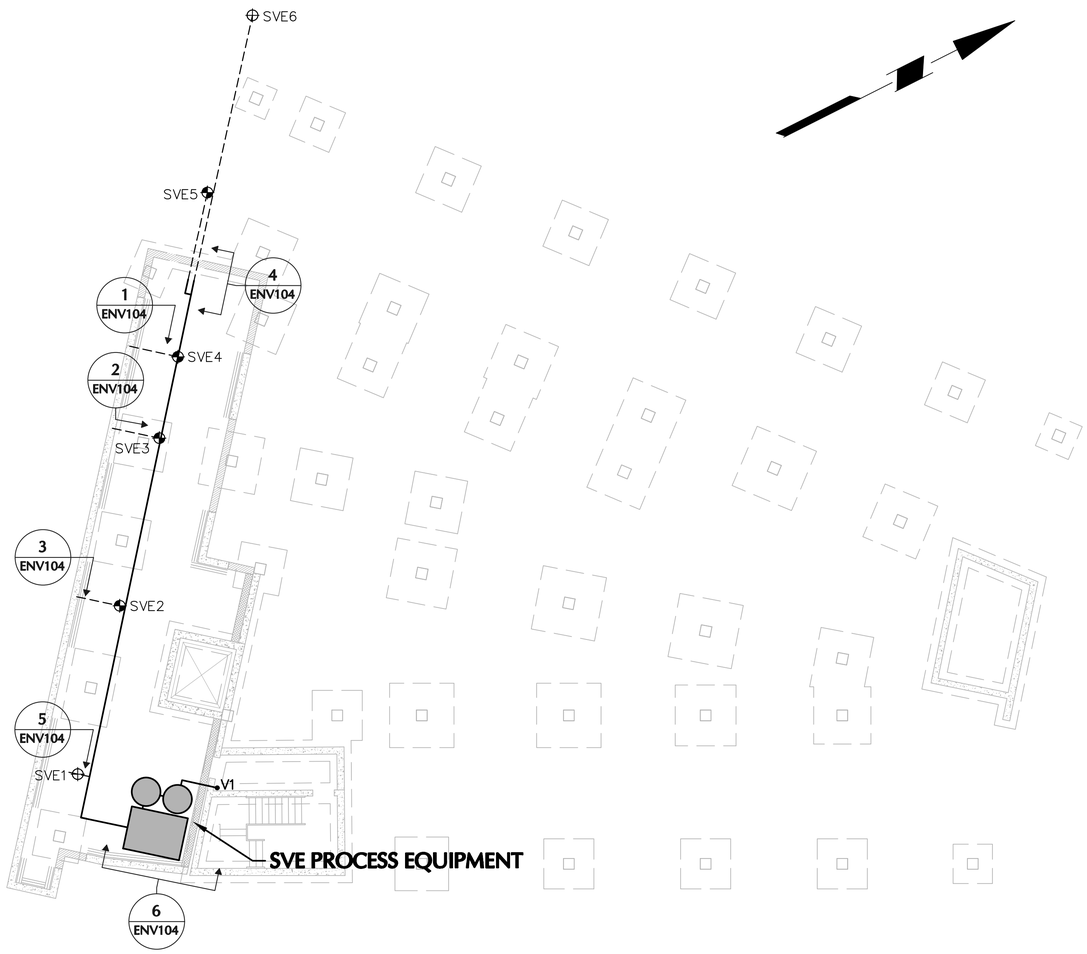
Project: 16-63 CODY AVENUE
BLOCK 3556, LOT 61
QUEENS NEW YORK

Drawing Title: SUB MEMBRANE DEPRESSURIZATION SYSTEM LAYOUT [FOUNDATION PLAN]

Project No.	101015501
Date	3/1/2024
Drawn By	JC
Checked By	MA/JF
Drawing No.	Figure 4
Sheet	2 of 5

Filename: \\langan.com\data\PAR\data5\101015501\Project Data_Discipline\Environmental\Reports\2024-02 - Revised RAWP\~CAD\SMDS LAYOUT_recover.dwg Date: 3/1/2024 Time: 19:53 User: jfriscia Style Table: Langan.stb Layout: ENV101 FOUNDATION

LANGAN PROJECT NO. 101015501

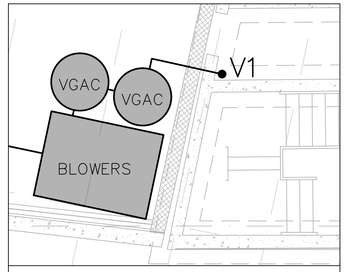


GENERAL NOTES:

1. THE COMPONENTS SHOWN ARE NOT TO SURVEYED COORDINATES. THE CONTRACTOR SHALL COORDINATE THE EXACT LOCATIONS AND LAYOUT OF THE VENTING SYSTEM COMPONENTS IN THE FIELD BASED ON ACTUAL SITE CONDITIONS AND OTHER PROPOSED WORK.
2. THE BUILDING PLAN REFERENCED IS SHEET S1 FROM THE STRUCTURAL PROGRESS SET PREPARED BY TAMBORRA ARCHITECTURE CONSTRUCTION, P.C. DATED 11 JANUARY 2024. REFER TO THE STRUCTURAL DESIGN SET FOR DETAILS ON STRUCTURAL ELEMENTS. THE BUILDING INFORMATION SHOWN IS FOR REFERENCE ONLY. THE PLAN DOES NOT SHOW EACH AND EVERY CONDITION EXISTING OR PROPOSED AT THE SITE. THE CONTRACTOR SHALL CONFIRM THE EXISTING AND PROPOSED SITE CONDITIONS, INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL, AND PLUMBING SYSTEMS; STRUCTURAL COMPONENTS; AND ARCHITECTURAL REQUIREMENTS PRIOR TO INITIATING INSTALLATION OF THE VENTING SYSTEM COMPONENTS.
3. INSTALLATION OF THE SOIL VAPOR EXTRACTION [SVE] SYSTEM PIPING SHALL BE COORDINATED WITH CONSTRUCTION OF OTHER UTILITIES, STRUCTURAL ELEMENTS, AND ALL OTHER TRADES.
4. NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY CONFLICTS BETWEEN THE WORK SHOWN ON THIS DRAWING AND ANY OTHER WORK REQUIRED FOR CONSTRUCTION.
5. SPECIFICATIONS FOR ALL SVE SYSTEM COMPONENTS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL.
6. THE GENERAL CONTRACTOR SHALL INSPECT THE FINISHED BUILDING SLAB FOR OPEN JOINTS AT WALLS, FOOTINGS, PIPING PENETRATIONS, DRAINS, ETC. SEAL OPEN JOINTS USING RETRO-COAT 2 PART CAULK BY LAND SCIENCE™ [OR APPROVED EQUAL] TO MINIMIZE THE POTENTIAL SOIL VAPOR ENTRY POINTS INTO THE STRUCTURE.
7. THE SVE SYSTEM PROCESS EQUIPMENT SHALL CONSIST OF A BLOWER CONFIGURATION CAPABLE OF ACHIEVING APPROXIMATELY 275 STANDARD CUBIC FEET PER MINUTE [SCFM] AT 25 INCHES OF WATER COLUMN [IWC].
8. ELECTRICAL REQUIREMENTS FOR ALL POWERED SVE SYSTEM EQUIPMENT SHALL BE CONFIRMED BY THE ELECTRICAL CONTRACTOR PRIOR TO INSTALLATION.
9. FOR DETAILS REGARDING THE SUB-SLAB MITIGATION SYSTEM REFER TO THE VAPOR MITIGATION SYSTEM DESIGN PACKAGE PREPARED BY LANGAN.

SOIL VAPOR EXTRACTION PIPING NOTES:

1. THE SVE SYSTEM SHALL CONSIST OF SIX [6] SVE WELLS [4 EXISTING SVE WELLS AND 2 PROPOSED SVE WELLS]. THE SVE WELLS SHALL MANIFOLD TO BELOW GRADE 2-INCH INDIVIDUAL WELL LINES, WHICH SHALL PENETRATE THE EXISTING CELLAR SLAB/WALL AND MANIFOLD TO A 4-INCH SVE HEADER LINE AT THE CELLAR CEILING LEVEL. THE SVE HEADER LINE SHALL MANIFOLD TO THE INLET OF THE PROCESS EQUIPMENT. COLLECTED VAPORS SHALL BE DISCHARGED AT THE ROOF LEVEL VIA A 6-INCH VERTICAL VENT RISER THAT RUNS VERTICALLY UP THROUGH THE BUILDING.
2. THE PROPOSED SVE WELLS SHALL BE CONSTRUCTED OF 4-INCH SCHEDULE 40 POLYVINYL CHLORIDE [SCH. 40 PVC], SCREENED FROM APPROXIMATELY 15 TO 35 FEET BELOW CELLAR GRADE SURFACE BASED ON FIELD OBSERVATIONS [I.E, ELEVATED PID READINGS]. THE SVE INDIVIDUAL WELL LINES SHALL BE CONSTRUCTED OF 2-INCH SCH. 40 PVC [BELOW GRADE] AND 2-INCH METAL [ABOVE GROUND]. THE SVE HEADER LINE SHALL BE CONSTRUCTED OF 4-INCH METAL. ALL SUB-SLAB PIPING SHALL BE INSTALLED LEVELED [E.G., LASER LEVEL OR EQUAL] TO PREVENT THE CREATION OF ANY LOW POINTS IN WHICH MOISTURE COULD POTENTIALLY ACCUMULATE. IN THE EVENT THAT LOW POINTS ARE IDENTIFIED, THE PIPING SHALL BE EQUIPPED WITH CONDENSATE WEEPHOLES. WEEPHOLES SHALL CONSIST OF A ¼-INCH HOLE INSTALLED ON THE BOTTOM OF THE PIPE CENTERLINE. WHERE REQUIRED, SLEEVE(S) SHALL BE INSTALLED THROUGH GRADE BEAM(S) AND/OR OTHER FOUNDATION ELEMENTS, AS APPLICABLE, TO ALLOW PIPING TO RUN UNIMPEDED. WHERE REQUIRED, PIPING SHALL BE EQUIPPED WITH SWEEP FITTINGS IN THE PLACE OF 90 DEGREE ELBOWS.
3. EACH SVE WELL, EXISTING AND PROPOSED, SHALL BE EQUIPPED WITH AN 8-INCH DIAMETER WATER-TIGHT FLUSH-MOUNT WELL VAULT TO ALLOW ACCESS FOR OPERATION, MAINTENANCE, AND MONITORING.
4. ALL PROCESS EQUIPMENT SHALL BE INSTALLED WITHIN A NOISE-PROOFED ENCLOSURE. THE EXACT SIZE AND LOCATION OF THE PROCESS EQUIPMENT WITHIN THE BUILDING SHALL BE DETERMINED BASED ON FINAL EQUIPMENT SELECTION, AND SHALL BE COORDINATED WITH THE ARCHITECT.
5. THE VERTICAL VENT RISER PIPE SHALL BE INSTALLED IN COORDINATION WITH THE ARCHITECTURAL, MECHANICAL, AND STRUCTURAL DRAWINGS. RISER PIPING SHALL BE ROUTED AS DIRECTLY AS POSSIBLE TO THE ROOF, WITH FIELD ADJUSTMENTS AS NEEDED TO MAINTAIN REQUIRED SEPARATION FROM AIR INTAKES, MECHANICAL EQUIPMENT, AND STRUCTURAL ELEMENTS. ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD.
6. THE VERTICAL VENT RISER PIPE SHALL BE CONSTRUCTED OF 6-INCH METAL. PIPE HANGERS SHALL BE INSTALLED AT EACH HORIZONTAL TO VERTICAL PIPE CONNECTION. RISER PIPE SHALL BE LABELED AS "CAUTION-VAPOR VENT PIPE. DO NOT ALTER IN ANY WAY. REPORT ANY DAMAGE IMMEDIATELY TO BUILDING MANAGEMENT" WITHIN THE FIRST 5 FEET OF THE SLAB AND AT A MINIMUM OF EVERY 15 LINEAR FEET OF PIPE. EXTERIOR RISER PIPE SHALL BE CONSTRUCTED OF 6-INCH SCH. 40 PVC AND INSULATED WITH UV-RATED INSULATION.
7. THE VENT RISER TERMINATION SHALL BE LOCATED AS FOLLOWS: AT LEAST ONE FOOT ABOVE THE HIGHEST PARAPET OR EAVE WITHIN 10 FEET HORIZONTALLY OF THE VENT; AT LEAST 10 FEET HORIZONTALLY FROM, AND NOT DIRECTLY BELOW, ANY OPENING WINDOW, DOOR, AIR INTAKE, OR OTHER OPENING INTO THE BUILDING; AND AT LEAST 10 FEET AWAY FROM ANY ADJACENT BUILDING, SIDEWALK, OR AREA FREQUENTED BY PERSONS ONSITE.



SVE PROCESS EQUIPMENT

NOTE:

1. SVE PROCESS EQUIPMENT LAYOUT TO BE DETERMINED BASED ON FINAL EQUIPMENT SELECTION AND SPECIFIED BY SVE EQUIPMENT FABRICATOR.

LEGEND:

SVE1 ⊕	SVE WELL LOCATION [PROPOSED]
SVE2 ⊕	SVE WELL LOCATION [EXISTING]
- - - - - -	2-INCH SVE INDIVIDUAL WELL LINE
———	4-INCH SVE HEADER LINE
• V1	6-INCH SVE VERTICAL VENT RISER
	BUILDING EXTENTS
1 ENV104	REFER TO DETAIL 1 ON DRAWING ENV104

10 0 2 4 10
SCALE IN FEET

Date	Description	No.
REVISIONS		

CONCEPTUAL

SIGNATURE DATE SIGNED
JESSICA FRISCIA
PROFESSIONAL ENGINEER NY LIC. No. 099567

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NJ CERTIFICATE OF AUTHORIZATION No. 24GA27996400

Project
16-63 CODY AVENUE
QUEENS NEW YORK

Drawing Title
SOIL VAPOR EXTRACTION SYSTEM LAYOUT [FOUNDATION]

Project No. 101015501
Date 03/22/2024
Drawn By AL
Checked By JF/MA

Drawing No. Figure 5
Sheet 2 of 5

LANGAN PROJECT NO. 101015501

Filename: C:\bms\langan-pw-01\d0528793\101015501-0501-ND101-0101.dwg Date: 3/22/2024 Time: 09:33 User: alooman Style Table: Langan.stb Layout: ENV101 FOUNDATION